Gleanings in Bee Culture

January, 1949 Vol. 77, No. 1

What's Ahead for the Beekeeper?

By Clarence Tontz, Elsinore, California

The question with many beekeepers and those planning on going into the game is: part time or full time? If you retail or job to grocery stores you may saturate your market and be forced to sell part of your crop at a low price. That is where a sideline may come in handy.

The successful beekeeper in the years ahead will be one who can get the highest possible honey yield per man hour and dollar expended, who is able to conceive and utilize valuable tricks of the trade. His plans must be firm but flexible enough to grasp the ever-changing problems that will confront him.

Competition within the ranks of beekeepers will be terrific. Competition from outside the ranks in the form of new, cheaper sweet products will be more so. Although beekeeping has not nearly kept pace with general farming regarding labor-saving tools, short-cuts are being devised and you can expect speed-up inventions that will be practical both for the commercial and back-lotter beekeeper.

Chemistry and business have organized on a large scale to make new products from regular farm crops. Take for example the lowly grain sorghum or milo maize. It thrives in sections of the midwest where the sun is too hot and the water too scarce for corn. For many years its main value was for livestock feed. After 10 years' work the U. S. Department of Agriculture has managed to saw off the length of this sorghum's stalk so that now we have a uniform, high producing dwarf-stalk sorghum which can be harvested easily by standard machinery.

In Texas the Corn Products Refining Company is now constructing a 10 million dollar plant to turn 6 million bushels of sorghum into starch and dextrose. This is just one of the examples of how syrups can and will be produced.

Regarding this army of inferior substitutes that will be thrown on the market, it is absurd to compete with them on the same basis or level. Pure, clean, mild honey has pulled its own weight for a good

Chickens for meat and eggs as well as attracting trade for chickens, eggs, and honey

many years and will continue to do so as far as table use is concerned. But we've got to be able to produce it cheaply enough to successfully compete with other sweets used in cooking and baking. Remember all the articles in the press a couple of years ago about the magic brewers' yeast that was a "perfect substitute for meat?" Some of us are still stubborn enough to buy ground round and even a steak occasionally.

The old question of whether one should specialize or diversify again confronts us. I know of a good many successful commercial beekeepers who have no income other than honey and wax. I know of some persons who attempted to keep a half-dozen projects going, none of them paying off.

The advantages of specialization, say in honey production, is that you can get all "geared up" for effective work. You become skilled in cutting corners. You can buy your supplies cheaper than the little man. You can obtain skilled beekeeping help and not just a handy man. Unless you pack your honey you do not have to work around the calendar. Packers, too, sometimes take off a month or two in the winter.

However, a commercial beekeeper who has no other irons in the fire runs the danger of being transferred from a bed of roses to a bottle of red ink by a short crop of honey that winds up his work (and bank account) in August or September. Of course, you can still go out and get a job during the slack season, but jobs are getting scarcer. Moreover, on most jobs you start at the bottom of the wage scale. Several beekeepers who worked during the slack season tell me that they invariably lose money in the long run by some phase of their business being neglected.

To offset this risk, some beekeepers have started projects that will tie in with beekeeping. Some honey producers raise a few queens and package bees for the trade.

Rabbits (when feed prices become normal) produce a first class meat as well as fur with only a small amount of space and little overhead.

Corn on the cob for Christmas. That's possible now. Just reach down into a cold box.

A small orchard, especially with the perfection of a deep freeze home locker, will ease the strain on the pocketbook.

In several cases I have noted that fur farming is a favorite tie-in with beekeeping, especially in the northern states. Even California and other western states, I was surprised to find, produce a fair amount of domestic pelts. In the mountain areas of my neighboring county of San Bernardino gross receipts from the sale of ranch-raised fox pelts for 1945 totaled $120,000.

The perfecting of the home deep freezer unit is definitely a boon to beekeepers. They can either raise or buy livestock and store the meat in the freezer for future use. Vegetables and fruits, if you do not raise them, can be bought in quantity in season at relatively low prices and stored in the freezer to be eaten at a time when the same food has advanced 20 to 30 percent.

The meat shortage during the war skyrocketed the popularity of the domestic rabbit as never before. Hundreds of thousands of people who had never eaten rabbit meat before found it amazingly good. When feed prices are somewhat normal (which they aren't now) raising your own rabbit meat appears to be a good risk.

Many part-time beekeepers raise poultry of all kinds and supply their families with meat and eggs as well as some for the market. If you desire to retail all or part of your honey crop it always helps to have other products to help draw in the customers. When I was a lad of 12 with half a dozen colonies in Oklahoma I sold most of my honey to customers who stopped at Dad's poultry ranch for eggs and fryers.

In selecting a combination of projects you have to do some excellent planning to keep the work going smoothly. Don't, for example, duplicate this sad case that allegedly happened in a northern state. A backyard beekeeper worked up a sure-fire combination. It was an apple orchard, a couple dozen silver foxes, and 50 colonies of bees. The orchard was enclosed in a fox-tight fence. The bees and fox pens were located close together. In early fall he went on a vacation. When he re-

Some beekeepers find fox farming a good beekeeping sideline. A good deal of the work such as pelting and marketing is done during the winter months when bee work is slow.

turned he found that two thirds of the baby foxes had been bruised, maimed and even killed by large falling apples from trees overhanging some of the pens. Most of the remaining young foxes had been stung to death by the bees, irritated by a cut-off of the honey flow. Because of the mean bees he could not get help to harvest the apples. When he trucked the bees out of the orchard his helper forgot to close the gate and several of his valuable breeder foxes escaped. See what I mean?

If you are interested in taking up a project of which you have little knowledge, obtain bulletins, books, magazines, and talk with experienced persons in the particular line. Before you decide to produce your own eggs, for example, find out if you can produce them cheaper than the commercial man down the road who has been supplying you.

If you don't already know this, here is a method of making money that has seldom failed. In your locality start producing something that will do well but hasn't been produced there to any extent or at all before. But remember, be sure to first locate a market for what you intend producing. Just because everyone else is raising chickens and glutting the market with eggs need you raise chickens, too? No! You may find that pen-raised quail or pheasant do well in your locality and that a small but profitable market can be built selling pairs of breeders to conservation agencies, stock to sporting clubs, and dressed game to restaurants and hotels. A word of warning: Investigate any project quietly and without haste. Avoid like the plague any high-pressure operator who wants to sell you a pair of animals guaranteed to retire you in five years. Instead of silver being tapped, a good beekeeper may be trapped.

Prof. H. R. Gouldin of Syracuse, N. Y., examining his bees during January. Some beekeepers worry about snow covering their hives. There is no need for worry, provided ice does not freeze over the hive entrances during a sleet storm. Even then, hives with a small upper entrance are safe. Snow is wonderful winter protection. Leave it on the hives.

Sulfathiazole in the Treatment of AFB*

By H. Katznelson, Bacteriologist

It is now four years since the appearance of Haseman and Childers' Bulletin 482 "Controlling Foulbrood with Sulfa Drugs" and as you know it started off one of the most heated controversies in modern beekeeping. However, free discussion and criticism of any claims or discoveries of new cures for diseases is healthy and desirable; any scientist and research man welcomes it. In this way various problems are brought up and ironed out, improved methods of treatment may be suggested, and dangers or pitfalls are exposed. In the light of this, the recent tirades against those who do not accept the sulfa treatment as gospel are hard to explain. The apicultural authorities at whom these diatribes are directed most assuredly have the interests of bees and the bee industry at heart and would be the last to discard anything with such potentialities as sulfa drugs. However, they are not prepared to accept any claim affecting the industry without subjecting it to careful scientific experimentation designed not to discredit it but rather to study its general usefulness, implications, and dangers. They do this in the light of their experience of many years with other so-called cures for AFB. After all, you are more or less familiar with the enthusiasm and subsequent disappointment over such treatments for the control and eradication of bee diseases as shaking, use of alcohol-formalin, water-formalin, or chlorine solutions or formalin gas. So the hesitation of government officials especially, regarding the new treatment, is fully justified until adequately controlled experiments by scientific investigators in different parts of the country or the world show it to be effective and harmless. But regardless of the research to date, it is only four years since the announcement of the use of sulfa drugs, so that from the long-range point of view it is still difficult if not impossible to say how completely effective they are. In this connection an experience of one of the leading apiculturists in the U. S. is worth recounting. He had treated AFB combs with formaldehyde and had watched them for three or four years with no disease developing. He concluded that the combs were safe and scattered them in one of his apiaries. A year or two later AFB broke out in those colonies containing these combs, yet formaldehyde is much more effective in destroying spores of the AFB organism, **Bacillus larvae,** than sulfa drugs.

Before proceeding with our own laboratory and field experiments with sulfa drugs I wish to review briefly the results and experiences of some other workers on this problem.

Haseman and Childers in 1944 reported that the feeding of sulfathiazole could prevent the disease from developing and that it resulted in the cleaning up of infected colonies. However, they experienced trouble with three colonies which improved markedly as a result of feeding and reared healthy brood, but in which evidence of AFB was still noticeable; when feeding was discontinued for two months the disease reappeared in the late brood. These three colonies finally died. They concluded, therefore, that as long as there is evidence of disease in the hive, sulfa must be fed continuously. Even in their third experiment they encountered trouble, explained by the fact that feeding was begun too late in the season and that not enough sulfa was available.

Their claim that "it has very beneficial action on bees infected with the Nosema parasite" has not been verified insofar as I am aware.

In a later paper (1946) Haseman reported that sulfaguanidine is as effective as sulfathiazole (and sulfanilamide) and that the earlier work of Childers had been successfully repeated. Furthermore, he stated that a thorough clean-up with sulfa may protect a colony against re-infection for two seasons but advised feeding the drug each spring or fall or whenever infection appeared, as part of a regular apiary routine. In his most recent publica-

*Address at the Annual Convention of Beekeepers of Alberta, Saskatchewan, and Ontario (Oct. 26-27, Oct. 29-30, and Nov. 10-12, 1948 respectively). Contribution No. 270 (Journal Series) from the Division of Bacteriology and Dairy Research, Science Service, Department of Agriculture, Ottawa.

tion (1948) he reported that streptomycin and penicillin may be used successfully but involved too much trouble. Other workers in Canada and the U. S. were unsuccessful with penicillin.

Milne of the Rothamsted Experimental Station similarly demonstrated the preventive action of sulfathiazole and the elimination of all visible signs of AFB in diseased colonies. He, too, reported recurrence within six weeks of cessation of feeding and, more important still, that some colonies did not react successfully to treatment. He pointed out further that the drug does not necessarily prevent spread of the disease to combs free from it at the start of treatment. However, of the 32 colonies treated, 29 showed no evidence of disease during the course of the treatment (from 33 to 148 days).

The important work of two other investigators, Eckert in California and Johnson in Connecticut, should be mentioned.

Eckert (1947) observed recurrence with two of 19 treated colonies (with varying degrees of infection) although further feeding finally resulted in the disappearance of all visible signs of the disease. The remaining colonies reacted favorably, some within a short time. In 1948 Eckert reported that 17 of these colonies wintered well and were clean. Two colonies were apparently infected from an outside source; eventually they were freed of the disease as a result of sulfa feeding. Eighteen other infected colonies were also fed and were clean at the end of the season. He used sodium sulfathiazole in his work. EFB was not controllable with sulfa drugs nor was sacbrood or paralysis.

In a series of papers on the use of sulfathiazole Johnson reported favorable results with six out of seven colonies (among others) variously infected. These colonies wintered well but three showed recurrence the following season. His data showed that five out of six hives remained free from disease for two full years after the original treatment with sulfa, and 10 out of 11 passed through one year without a definite recurrence of the disease. He concluded that sulfathiazole eliminates all visual evidence of the disease in the brood regardless of the extent of infection and that prolonged treatment may eliminate the disease for at least two years. He found penicillin, furacin, and x-ray treatment ineffective; sulfaguanidine was much slower than sulfathiazole; sodium sulfathiazole and sulfadiazine were as effective as sulfathiazole.

With the results of these workers as background, I should like to summarize the results of our laboratory work and our field studies to date carried out in cooperation with the Bee Division.

Laboratory Studies

Our very first study was to compare the action of different sulfa drugs (sulfanilamide, sulfapyridine, and sulfathiazole) with other agents such as penicillin, streptomycin, notatin, clavacin, etc., on the cells (not the spores) of a number of bacteria involved in foulbrood diseases of bees, **Bacillus larvae, Bacillus alvei, and Bacillus para-alvei.** Sulfathiazole was the most effective of the three sulfa drugs tested but the amounts of these drugs required to inhibit these organisms were very great as compared with those of the other substances tested. Penicillin and notatin were the most effective of these, being able to prevent growth completely at dilutions of 1:5 or 1:10 million.

During the past year we have been concerned with the effect of sodium (Na) sulfathiazole on both vegetative cells and spores of **B. larvae,** the organism causing AFB. Spores are very resistant, seed-like bodies and some can withstand boiling in water for a number of minutes; vegetative cells on the other hand are much less resistant and may be killed by heating to 80 degrees C. (176 degrees F.) for 10 minutes. Investigators have shown that spores of AFB are particularly tough and will even remain alive for months in 5 percent carbolic acid. We have had many opportunities to test AFB scale treated with formaldehyde gas. After five days' exposure the spores are killed, but not after three days. We exposed these spores to as much as 1 percent Na-sulfathiazole for over 14 months in both water and honey and the latest test showed them to be still alive. Since Na-sulfathiazole is somewhat unstable, the solution was reinforced with fresh material at frequent intervals. We fully expected this result but wished merely to demonstrate the fact ex-

perimentally. In the actual treatment of a colony with sulfa a concentration of about one part in 7500 is used (½ gram to the gallon of syrup) so that there is no likelihood whatever of this treatment killing the spores in the honey and most certainly not in various other parts of the hive in which they may be lodged. This point is well recognized now and the prescribed treatments take this into consideration.

We have found that the bacterial cells are usually killed by 1 percent solution but that smaller amounts of sulfa will just retard them. There is considerable variation among different strains of the organism, **B. larvae**, with respect to their tolerance of the drug. Thus we have observed that all of 40 strains are inhibited by 1 percent sulfa, most of them being killed; 26 were inhibited partially by 1:400 dilution; 5 by 1:800, and one by 1:1600.

We have also tried to adapt these strains to grow in high concentrations of Na-sulfathiazole since it is well known in bacteriology that bacteria can become accustomed to these drugs through constant contact over a period of time and actually to become resistant to them, which incidentally is another possible danger in the use of sulfa drugs. We have succeeded in adapting these 40 strains to grow in 1 percent Na-sulfathiazole, whereas originally most of them were killed by this concentration.

Field Studies

In the spring of this year experiments were set up in cooperation with the Bee Division to study both the prevention of infection and the cleaning up of infected colonies by sodium sulfathiazole. Some objection based on little or no experimental evidence, has been raised to the use of this particular drug owing to its instability. However, it has been applied successfully by Johnson, Eckert, and Haseman and has proved satisfactory in our own experiments. The drug was fed in the usual manner (with an inverted, perforated honey pail placed directly over the brood combs) at the rate of 0.5 grams per gallon of a 1:1 gallon sugar-water syrup; one gallon only was used. AFB spores were fed in the same syrup at the rate of about two billion per gallon. In addition a chemical compound known as para - aminobenzoic acid was fed to some colonies; this substance interferes with sulfa drug action. Our results were as follows: AFB spores alone gave heavy infection as did the treatment of spores plus p-aminobenzoic acid; spores plus Na-sulfathiazole gave no infection; spores plus Na-sulfathiazole plus p-aminobenzoic acid gave infection indicating that the latter substance actually interfered with the action of the sulfa drug. At the same time another experiment was carried out to determine whether a 1 percent solution of the drug would affect the ability of the AFB spores to produce the disease. We had already shown that it would not kill them but whether it rendered them harmless we had not demonstrated though frankly we did not think it would. Spores were kept in a 1 percent solution of Na-sulfathiazole for 4 months in both water and honey, then they were washed to remove the sulfa and fed in 50 percent syrup. As expected, infection occurred.

All colonies showing infection were then given one gallon of medicated syrup and in a short time they showed no sign of disease; they remained clean up to the last examination on October 6. Naturally it required a longer period for the badly infected colonies to be cleaned up. We were curious to know what happened to the scales the bees removed so we spread a piece of tar paper in front of one of the badly infected hives when treatment was begun and after a time examined various particles picked up from the paper. Many of these proved to be pieces of scale, loaded with spores and therefore constituting a source of future infection, although the material may be dispersed by rain or melting snow so that it is not perhaps a serious hazard.

Our results showed, therefore, that sulfa could prevent infection and cause it to be eliminated from diseased colonies and are in line with the results of most investigators who have tried this treatment. But this is only one part of the picture, reminding one of a doctor removing the infected material from a patient and curing him, but leaving this infected material around for others to become infected. The important question is whether the colonies had been cured. Would the disease show up later in the season or in the following seasons, assum-

ing that sulfa was not fed as a preventive?

We also have available the results of experiments begun in 1946 by Mr. Stephen, formerly of the Bee Division. These results were discussed last year by Mr. Gooderham, but now another year has passed.

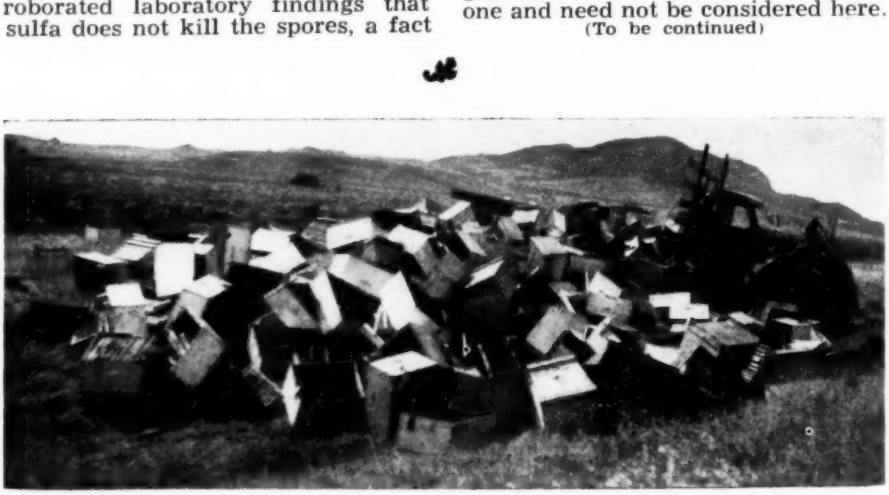
To summarize, in 1946, 10 colonies were inoculated with AFB combs and became infected; six received sulfathiazole in various forms (Na - sulfathiazole, powder, tablet), three penicillin, and one was left as control. Penicillin failed to check the disease. The colonies were then fed sulfa syrup and the disease began to disappear and healthy brood to become established. Four of the sulfa-treated colonies were cleaned up but two contained a few scales. One of these was fed sulfa but in June 1947 both were still infected and in addition one colony which was free of all visible evidence of disease in the fall of 1946 showed infection. This indicates that 50 percent of the treated colonies still carried the disease. The three colonies were fed sulfa syrup in June 1947 and were apparently clean in the fall. They still show no sign of infection.

In another experiment it was shown that honey from an infected colony (under treatment with sulfa) was still capable of transmitting the disease; this observation corroborated laboratory findings that sulfa does not kill the spores, a fact further supported by the reported recurrence of the disease after sulfa feeding is stopped.

Sulfathiazole was also tested in cooperation with a commercial beekeeper who in June 1946 placed a total of 27 infected colonies at the disposal of the Bee Division. Medicated syrup was fed throughout the season and on September 25 only two colonies showed signs of disease. Treated syrup was fed for the winter and again in the spring of 1947 and the colonies remained free from all signs of AFB during this and the 1948 season.

The question naturally arises as to how the sulfa drugs prevent the disease from developing. It is generally agreed that it protects the larvae by inhibiting the growth of the virulent organism (not the spore) in their digestive tracts. The essence of the treatment then is to have the drug in the larvae as long as there is a chance for spores of AFB to get in, germinate, and produce the disease. This applies whether the drug is fed as a preventive or to clean up infection. In the latter case its presence permits the development of healthy brood thus building up the strength and particularly the morale of the colony and thus stimulating the clean-up of dead larvae and scale. The actual mechanism of inhibition of the disease-producing organism with the larvae is a complex one and need not be considered here.

(To be continued)



Picture of a load of bees spilled on the highway near Sundance, Wyoming. The driver was moving from North Dakota to his home in California. The truck turned completely over and landed on its wheels. Every hive was broken open, as they had not been fastened together. The driver was not hurt. —Photo by John D. Burt, Newberg, Oregon.

Midwinter Inspection of Bees

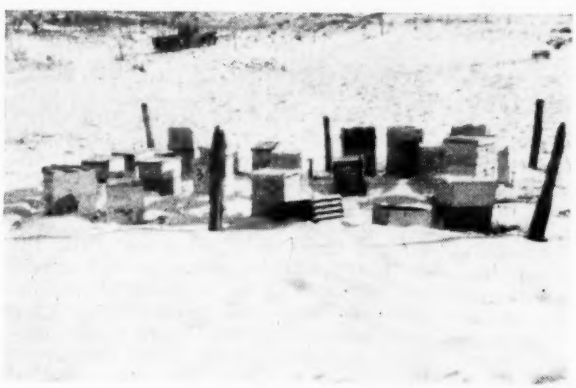
It May be Done as an Emergency During a Mild Spell
By Wayne Keller, Lakeside, Nebraska

During warm days in the fall a beekeeper is hesitant about opening hives because of robbing. Many of the old honey harvesters are yet alive. These get a taste of honey and learn where there is a never-ending supply. Once they have learned to enter other hives they will continue doing so when most of the guards are clustered. Many young bees will learn the habit, and the apiary will not quiet down as it should and forget work until next season. Such robbing is encouraged by exchanging honey stores for empty combs. It is difficult to dislodge every bee, especially on chilly days, and haste prevents exactness. Proper distribution of honey is hindered.

Many colonies are unpredictable of honey consumption and will have more or less than they need. When it is warm enough in the fall to handle bees, they are not clustered tightly enough. Strength is difficult to estimate when all the old bees have not died and all brood has not emerged. Because of these things much equalization of stores will be delayed until somewhat later. Therefore, although the precaution is taken to supply stores to the obviously needy, a midwinter or late winter inspection is advisable for the majority. In years of plenty, less attention will be needed because all are overly well supplied.

My policy is to wait until I think the poorly supplied colonies might run low. If one waits too long, he finds that some colonies are chilled and partly frozen because there was not enough honey near the winter cluster. Usually the bees can recover when honey is added, but artificial heat may be needed to revive them sufficiently that they may begin to eat and be able to generate heat. **My visit is timed to antedate starving, chilling, and eventual freezing.** A protracted cold spell may delay a second visit. Should chilled colonies be found, they may be established directly in a new winter nest by shaking them into a hive prepared with opened honeycombs. If found at a time when the temperature is too cold for handling, the bees may be given one comb of honey and be kept in a warm place until the weather breaks. In our area there usually is a break of the low winter temperature before midwinter—that is, sometime in December; and another break late in February. The temperature may be just under 60 degrees Fahrenheit with the sun shining brightly. Under these conditions there will be several hours for a couple of days that one may break open the lighter and heavier colonies and equalize stores. Stores and winter clusters may be arranged also so the bees will not later perish with honey out of reach within the hive. **The work should be done before two o'clock,** if bees are not flying, as the temperature drops so rapidly after that time on winter days that many bees induced to leave the

(Continued on page 34)



The hill behind the photographer acts as a windbreak, piling up the snow behind the colonies in the foreground. The downdraft strikes beyond the hives.

Bee Gathered Pollen in Various Localities on the Pacific Coast

By George H. Vansell and Frank E. Todd, Division of Bee Culture*
U. S. Department of Agriculture, Agricultural Research Administration
Bureau of Entomology and Plant Quarantine

A study has been made of the gathering of pollen by bees and data of yields obtained from pollen traps in 39 western localities. The results indicate certain localities where trapping of pollen in quantities for commercial use might be feasible.

The whole subject of a bee collected supply of pollen and the uses of such pollen is essentially new. A simple trap for removing the pollen loads from the incoming bees of a colony has been devised. The use of pollen in feeding bees for colony build-up has progressed past the experimental stage. There is, as yet, little commercial pollen available. The current equipment for and the process of trapping pollen, as well as the role of pollen in the economy of the hive, have been discussed in other publications (1, 3).

The quantity of pollen available in a locality has an important bearing on beekeeping possibilities. For example, the Sacramento Valley of California, which has a tremendous supply of pollen from deciduous fruits and other sources with which to rear bees, is therefore the important package bee-producing area of the West. On the other hand, in the Pahvant Valley around Delta, Utah, the pollen sources are so limited that it is difficult to build colonies for the alfalfa honey flow. Even after the alfalfa comes into bloom, the pollen supply is very limited. The bees, in that case, are usually moved out to other places having more pollen for the spring build-up.

A good colony needs 40 or more pounds of pollen to maintain optimum brood rearing during a year. The rearing of a frame of brood requires about a frame of pollen. The low pollen income at some hives where traps are set shows the need for the feeding of additional pollen or pollen supplements. When pollen is scarce, bees may collect the spores of a number of fungi and use them for brood rearing. No satisfactory complete substitute for pollen has been found, however. Soybean flour has value as a supplement to pollen, even though it is not a complete substitute.

Not all pollens are of equal nutritive value. The chemical constituents vary widely. For example, the protein content among 32 samples analyzed by Todd and Bretherick (2) ranged from about 7 to 30 percent, and the fat content from less than 1 to more than 14 percent. Corn pollen had more than 22 percent of starch, whereas pollen from some sources had none. It is evident from the variation in constituents that larger quantities of some kinds of pollen would be required to rear a pound of bees.

A trap does not remove all the pollen, but its yield indicates the available field supply. Incomplete trap records from 39 widely separated localities in the Pacific Coast States have been secured. These trap records show the general importance of some pollen-producing plants regardless of locality. The relative value of the plants is learned from a study of the trapped pollen.

At each locality the trap was alternated between two similar colonies at intervals of about 10 days, in order that the colony strength and a steady pollen income could be better assured. The pollen was usually removed from the traps daily. It was mailed periodically to the laboratory for weight and other determinations. The weights are for air-dried pollen; dried pollen weighs about 20 percent less than fresh.

The pollen trapped per colony from 18 localities during the active season ranged from 9 to 70 pounds. The yield data for these and other localities for shorter periods are presented in Table 1. Although the trapping records covered a period of eight years, in some of the records a gap of 2 to 6 weeks occurred during the collection time; thus the data are not so valuable for direct comparison as for a general indication of the pollen productivity of a locality. However, where traps have been operated more than one year in the same locality the seasonal trends have been somewhat similar,

*In cooperation with the University of California.

Table 1.—Grams of pollen collected per day at various localities from 1937 to 1944

Locality	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.
Arizona											
Chandler	32	23	18	51	59	69	67	31	101	11	12
Phoenix	—	—	128	95	98	—	—	—	—	—	—
Tuscon	—	—	56	23	28	19	18	18	43	—	—
Yuma	33	53	50	145	—	—	—	—	—	—	—
British Columbia:											
Vernon	—	—	—	68	177	79	107	53	17	2	—
California											
Black Star Canyon	—	4	26	69	32	181	131	13	8	10	—
Brawley	35	63	65	49	47	28	20	15	39	12	2
Camino	—	—	—	—	—	35	16	23	15	—	—
Courtland	—	—	—	—	—	67	—	—	—	—	—
Davis	—	24	120	178	117	75	101	95	90	22	—
Glenn	—	—	—	—	82	—	—	—	—	—	—
Hanford	—	28	30	42	13	16	14	18	20	13	—
Lassen Park	—	—	—	—	—	—	—	30	36	—	—
Lindsay	—	—	—	—	35	—	—	—	—	—	—
Mineral	—	—	—	—	—	141	147	36	39	16	—
Oakdale	—	—	243	—	—	—	—	—	—	—	—
Orange	14	10	22	39	48	112	133	34	47	20	13
Paynes Creek	—	—	—	132	48	—	—	—	—	—	—
Placerville	—	—	11	185	40	26	22	31	19	8	—
Santa Paula	—	14	17	31	60	—	—	—	—	—	—
Santa Rosa	—	—	164	194	—	—	—	—	—	—	—
Santiago Canyon	—	—	—	—	—	—	71	4	—	—	—
Tuolumne	—	—	32	55	87	76	31	40	25	25	—
Winters	—	—	139	209	—	—	—	—	—	—	—
Nevada											
Carson Valley	—	—	—	42	121	192	67	153	—	—	—
Fallon	—	—	35	45	20	45	56	52	37	10	0.2
Mason Valley	—	—	—	47	45	43	51	35	—	—	—
Reno Valley	—	—	—	101	65	54	50	53	—	—	—
Oregon											
Ashland	1	4	25	54	88	80	83	61	23	7	—
Corvallis	—	3	34	72	132	58	44	9	5	1	10
Birkenfeld	—	—	70	27	23	—	—	—	—	—	—
Junction City	—	—	—	47	76	53	35	20	20	—	—
Silverton	—	—	—	—	—	41	267	—	—	—	—
Stanfield	—	—	—	—	41	289	31	29	13	5	—
Utah											
Delta	—	—	—	—	—	—	20	18	—	—	—
Deweyville	—	—	—	—	—	—	29	43	—	—	—
Logan	—	—	—	—	—	—	54	109	—	—	—
Petersboro	—	—	—	—	—	—	—	80	—	—	—
Smithfield	—	—	—	—	—	—	56	186	—	—	—

especially in the periods of the maximum and minimum yields. For example, the seasonal yields at Hanford, Calif., during two years have been less than one fourth of those at Davis. Both places had two peaks, one early and one late—a factor which may be rather general, since many places have an increase in flora following the hot summer period.

Fig. 1 illustrates graphically the radical differences in pollen income between eight localities. In five of these localities, where complete records were obtained for the period April through September, the seasonal yields ranged from 8 to 51 pounds. The August and September yields for Ashland are for a previous year because in 1943 the trap colony failed.

An interesting record was obtained in a deciduous fruit area near Vernon, British Columbia. The to-

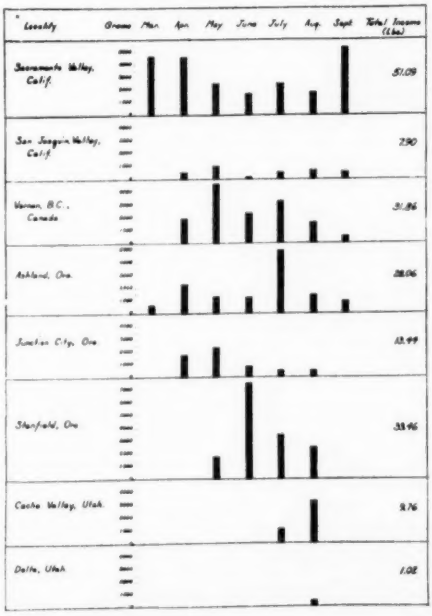


Fig. 1.—Comparative pollen income by months at several locations in 1943.

tal income from April to early October was 14,511 grams, or 32 pounds. The income for the bi-weekly periods is shown in Fig. 2.

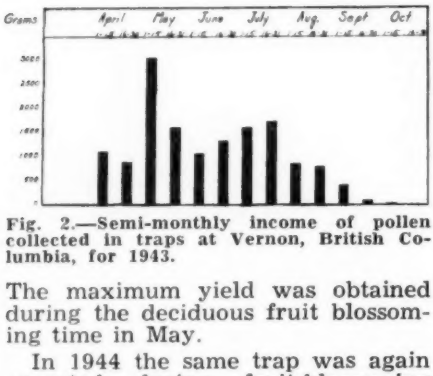


Fig. 2.—Semi-monthly income of pollen collected in traps at Vernon, British Columbia, for 1943.

The maximum yield was obtained during the deciduous fruit blossoming time in May.

In 1944 the same trap was again operated during fruit-blossoming time. Comparative data on the daily production for 20-day periods in both years are presented in Table 2. The total amounts differ by only 727 grams, or 1 pound 9 ounces.

Table 2.—Grams of pollen trapped daily during deciduous fruit blooming time at Vernon, British Columbia, 1943-'44.

Date (May)	1943	1944
1	53	42
2	90	15
3	150	58
4	17	140
5	200	160
6	—	165
7	225	127
8	233	74
9	153	40
10	81	90
11	221	173
12	180	266
13	156	303
14	396	302
15	381	231
16	378	370
17	256	331
18	420	350
19	399	271
20	207	60
Totals	4,294 (9 lb.)	3,567 (8 lb.)

The pollen income throughout a day is not constant. The comparative abundance of a particular source partly determines the time when most of the pollen is gathered. Detailed data on a trap yield at Davis, Calif., for August 5, 1940, are shown in Fig. 3. The pollen tray was emptied every 2 hours for ascertaining the weight and kinds of pollen. Corn pollen was present in the samples until 10 a.m., and orchard morning - glory until noon. About 85 percent of the total 91 grams of pollen was from yellow star thistle and California poppy. These pellets arrived throughout the collection period, as did a small number from Ladino clover. Since most of the pollen arrived between 9 a.m. and 2 p.m., a trap operated only during this portion of the day would not interfere with colony activity and still would obtain most of the supply. The best time of day for trapping at any location can be easily ascertained.

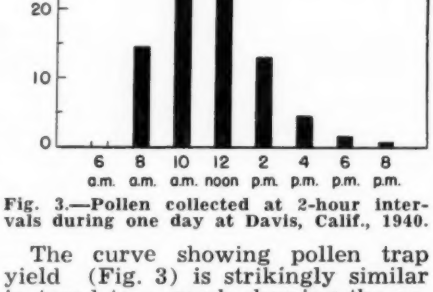


Fig. 3.—Pollen collected at 2-hour intervals during one day at Davis, Calif., 1940.

The curve showing pollen trap yield (Fig. 3) is strikingly similar in trend to a graph showing the activity of honey bees on Bartlett pear blossoms at Camino, Calif. (Vansell, 4). Only pollen-collecting bees visited the Bartlett blossoms because nectar was practically absent. The data were obtained by counting the visitors to the trees, for a pollen trap was not yet available at that time.

Some plants greatly surpass others in value as sources of pollen. The percentages of the different kinds of pellets found in a sample indicate the relative values of plants during any period. Such data on an aliquot from 915 grams of pollen trapped at Ashland, Oreg., from July 10 to 22, 1944, have been classified as to color and source (Table 3). More than 65 percent of the total was from yellow sweet clover. Earlier in the season dandelion would have been prominent. Although alfalfa was available in the locality, none of its pollen was found in the sample.

Some of the best pollen sources are almond, apple, apricot, asparagus, balsam root, bluecurls, cactus, California poppy, Canada thistle, **Ceanothus** (many kinds), clovers (especially yellow sweet clover), corn, cottonweed, dandelion, elm, filagree, gumweed, linden, maple, mesquite, mustard (many kinds),

Table 3.—Kinds of pollen from a trap operated at Ashland, Oreg., July 10-22, 1944

Color	Source	Percent by weight
Dark yellow-brown	Yellow sweet clover	64.6
Light yellow-brown	Yellow Sweet clover and poppy	23.3
Grayish-green	Unknown	5.7
Medium brown	Unknown and poppy	4.2
Dark brown	Dandelion	1.3
Greenish-Yellow	Cattail	.9

olive, peach, pine, pistachio, plum, redmaids, redwood, spikeweed, walnut, willows, and yellow star thistle. Alfalfa, fireweed, lima bean, manzanita, milkweed, orange, **Schrophularia,** and snowberry — all good honey sources—are of limited value as sources of pollen, especially when they occur with better pollen sources. The navel-orange blossom has no pollen. Some plants, such as chicory, greasewood, morning-glory, some tarweeds, and wild lettuce, shed pollen only during a short period of the day, whereas some of the most important ones are available throughout the day. The bees frequently show a decided preference for specific kinds of pollens, but most of the factors which govern their selection are obscure. Honey bees seldom collect pollen from chamise, cattail, and cotton, although these plants are very prolific pollen producers.

The trap data, as well as a study of the plant sources, indicate that the following are generally poor localities for pollen gathering: Imperial and San Joaquin Valleys in California, the Reno and Mason Valleys in Nevada, and the Pahvant Valley in Utah. The Willamette Valley of Oregon is poor after late June, but good during spring and early summer if weather permits field activity. The Lahontan Valley in Nevada appears to be medium in pollen productivity. Among the better areas are the Sacramento Valley and Sierra Nevada Mountains in California; Vernon, British Columbia; the Umatilla Valley and Rogue River Valley in Oregon; the Cache Valley in Utah; and the Carson Valley in Nevada.

This paper may be summarized as follows: (1) Bees require and collect a surprisingly large amount of pollen. Even where 50 pounds were trapped there was no surplus. (2) The amounts of pollen produced in 39 different localities vary greatly and some places—for example, the fireweed area of Oregon and Mason Valley in Nevada—are deficient in this important material essential for beekeeping. (3) Some plants, such as mustard, deciduous fruits, dandelion, willows, thistles, are of major importance as sources of pollen wherever found.

Acknowledgments

Assistance in the operation of traps by the following cooperators is gratefully acknowledged: S. E. Foote, Niles D. Benson, W. A. Crocket, and H. D. Smith, of Arizona; W. H. McMullen of Vernon, British Columbia; Roy K. Bishop, J. M. Goodyear, Wm. G. Watkins, C. G. Wenner, Walter Callison, M. J. Sain, W. A. Tillinghast, Harry J. Whitcombe, C. F. Austin, C. E. Gustafson, Geo. J. Brown, T. L. Nicolaysen, and R. C. Marks, of California; F. L. Hall, C. E. Andrews, Art Harmon, and A. Crannell, of Nevada; Joe Marty, Geo. W. Nichols, Jr., Ralph Black, C. D. Howard, Florence Bennett, H. A. Scullen, and Ernest R. Sires, of Oregon; Wm. S. Ellis, G. J. Meyer, G. W. Roundy, W. Wright, J. E. Wright, H. H. Sjostrom, M. F. McEwan, and D. K. Miller, of Utah.

The laboratory details of the work, including identification of pollen grains and tabulation of the data, were ably handled by Miss Ruth Watson.

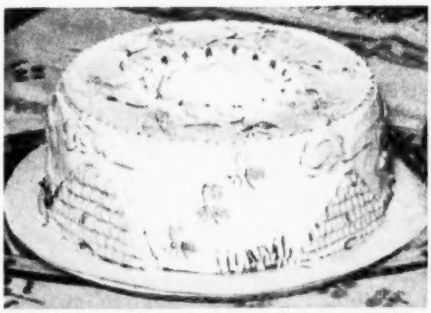
Literature Cited

(1) Todd, Frank E., and Bishop, Roy K. 1941. The role of pollen in the economy of the hive. U.S. Bur. Ent. and Plant Quar. E-536. Rev. 7 pp., illus. (Processed.)

(2) ———— and Bretherick, Ormond. 1942. Composition of pollens. Jour. Econ. Ent. 35: 312.

(3) Schaefer, C. W., and Farrar, C. L. 1941. Use of pollen traps and pollen supplements in developing honey bee colonies. U.S. Bur. Ent. and Plant Quar. E-531. Rev. 7 pp., illus. (Processed.)

(4) Vansell, George H. 1942. Factors affecting the usefulness of honeybees in pollination. U.S. Dept. Agr. Cir. 650, 31 pp., illus.



Carl Killion, well-known Illinois State Inspector, shows one of his honey cakes. Carl says he can't cook but knows some one who can and this is the result.

Wild Bees Engineered by an Engineer

A Stray Swarm Cooperates Beautifully
By R. B. Scarborough, Granville, Ohio

I am an engineer and my hobby is honey bees. Of all the many pleasant and strange experiences I have had the last several years, the one that stands out most and from which I have gotten the most thrills started this last summer on the fourth of July, 1948, while enjoying an evening picnic with my family on Sunset Hill on part of the campus of Denison University at Granville, Ohio.

We had some nice clover honey on the table and during the meal I noticed we had been joined by several Golden Italian honey bees. As the sun had gone down and I knew there were no apiaries near, I figured maybe our little golden visitors lived close by. So I walked a few yards to the edge of the woods and to the north of the fireplace, and at once I could hear that deep humming that I knew came from honey bees some place up in the trees. I know you have all heard this humming many times at twilight on a hot July evening. It was the bees in the tree fanning their wings to air-condition their home. I was standing right at the foot of a tall ash tree about two feet in diameter and without a limb for about 25 feet. As I looked up this tree, sure enough there they were just below the first limb, going in and out of a large knot hole.

I could not see them very clearly but could hear them distinctly and what a thrill it was to stand there and know at last I had found some of my favorites in their wild state, where they had picked out a home and set up housekeeping for themselves without our aid. It was a thrill I hope everyone who loves bees can sometime experience. I could hardly wait until the next morning to go back in the daylight and be sure that I had seen and heard aright.

Now, as I live in Granville and only about one half mile from where I found the tree, next morning about ten o'clock I took my extension ladders out and drove out again, and sure enough there they were working away with a large mass of bees all around the knot hole in the tree.

The tree they picked for their home

I have only a few colonies of bees and as I sat there and watched them working, I determined to try to transfer this fine colony to a modern hive. I went to the manager of the college and told him what I had found and asked permission to get them, which he readily granted.

Queens Ordered from the South

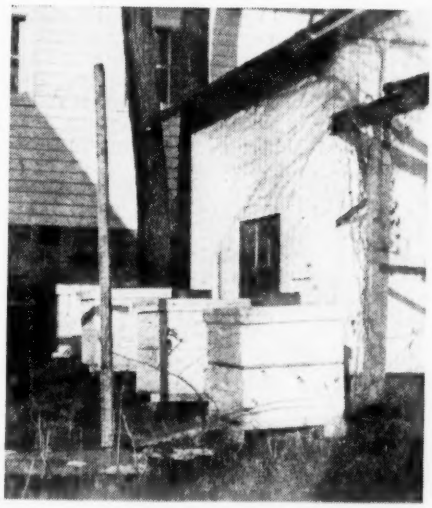
As I had been planning for some time to get some new queens for my apiary, I immediately sent an order for four Golden Italian queens from down in Alabama. They came promptly in three days. Then I made a screen cone about 8 inches long and large enough at the base to encircle the knot hole and just large enough at the tip for one bee to come out at a time. Next I took a

good hive and from my apiary lifted a frame of brood and clinging bees and put it into the center of this hive and placed one of my newly-arrived queen cages containing a young Golden queen along the side of the frame of brood. Just as it was getting daylight the next morning I went up that tree with my smoker and smoked all the bees that were outside back into the knot hole and then nailed my screen cone over the hole and set my hive with its young queen in the tree as close to the hole as possible.

By the time I got all this done it was broad daylight and those bees were sure "raring" to get out and to work. As I now had everything in readiness I pulled the plug out of the cone. Right away I had one grand traffic jam in that cone for they all tried to come out at the same time. They kept coming out very rapidly one at a time. I watched them for some time and when I left they were still buzzing out of that funnel and some were already going into my hive. I did not go back for three days and then I found my hive so full of bees I could hardly get the lid back on. They were working away seemingly perfectly content with their new home. It gave me a wonderful feeling to see how well these little workers had cooperated with my plan.

I left them alone for two weeks, then I went up to see how my queen had fared. They were flying strong but when I went through the hive looking at each frame and saw no brood or eggs and could not find my fine Golden queen I was greatly disappointed. But I was not yet defeated, for when I introduced the other three queens to my colonies at home I could not bring myself to kill the old queens, so I put each one in a queen cage, put a wooden plug in the hole to keep her in, and inserted them on top of the supers inside the hives of other colonies where the workers could feed and care for them. How glad I was now that I had not destroyed them. I drove down and selected the best one of these queens and in my anxiety to get a laying queen into that hive quickly I threw caution to the wind. I pulled the wooden plug out of the cage and took one grain of just common old-fashioned candy corn and stuffed it into the hole. Then I took another frame of brood

A close-up from another tree. The knot hole is in the dark slit just to the right of the hive.



My apiary at home where I will put them

out of one of my hives, shook off all the bees this time, and went up and placed the frame of brood and queen cage in the center of that hive.

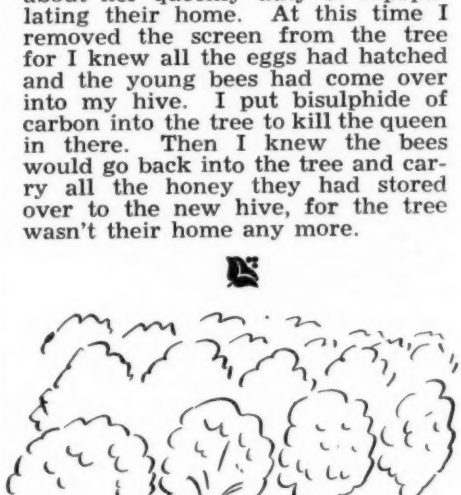
I went home feeling wonderful over my success. Although by having had the first queen killed I had lost several weeks of the honey season, I knew the colony had the strength to build up for the coming winter. How right I was for I have just finished checking them this twenty-fifth day of September and they have built up strong and still have lots of brood. But the workers are crowding the tops of the frames full of honey and pollen and gradually crowding the queen out of laying space. This is as it should be in a normal colony this time of year. I will leave them in the tree until cold weather for they are located on high ground surrounded by acres of goldenrod, heartsease, Spanish needle, and other fall flowers. This fine colony in their new home is surely making good use of these fine warm September days to replenish their stores for the coming winter.

Several times in the past few years I have driven out to a nearby apiary and bought a colony of bees, loaded them into my car, taken them home and put them on a stand and watched them go to work and build up to a strong colony and make me a nice lot of honey. I always get a wonderful lot of pleasure out of it, but never have I had the thrills and enjoyment as I have had finding this colony in its wild state. They will always be a little extra-special to me, and it will always be a real pleasure to tell visitors and my grandchildren the history of these wild bees and how they so graciously cooperated with me in giving them a modern home.

The mystery in this story and one I cannot answer but will often ponder over is why they killed my fine young Golden queen. The other three queens I introduced into my home apiary in the same kind of cages and in the same way were all accepted and now their hives are overflowing with young bees of a much finer golden color and more beautiful than my old strain of Italians.

Well, I guess if it wasn't for some of the mysterious ways of our little friends they would not be nearly as interesting. We can never be just real sure what they are up to next. Every time we work around them we see things that make us marvel and say that our little busy bees are among the most interesting and highly organized creatures on this earth.

I went home feeling bad for I felt most likely I was sending that queen to a quick death. I waited six days and went back and took the lid off, threw out the empty queen cage, and pulled out the center frame and held it up in the sunlight. As I stood there looking at that brood frame I got the real thrill of the whole adventure for in that comb was row after row of cells, each containing a tiny white egg. There were thousands of them. My old queen had been accepted and was doing a fine job bringing a bewildered colony of bees back to a normal thriving condition. I pulled out another frame and there was my old queen plump and fat with eggs going leisurely about her queenly duty of repopulating their home. At this time I removed the screen from the tree for I knew all the eggs had hatched and the young bees had come over into my hive. I put bisulphide of carbon into the tree to kill the queen in there. Then I knew the bees would go back into the tree and carry all the honey they had stored over to the new hive, for the tree wasn't their home any more.



"I told you to have some bees put in your orchard this year to pollinate the blossoms."

Let's Resolve

By Mrs. Benj. Nielsen

Honey fruit bowl and honey peparoons. — Photo courtesy Kellogg Co.

Recently at a gathering a group of women was having a perfectly marvelous time with swatches of draperies, wallpaper, upholstery, and rugs—combining these, taking one away, substituting something different for a not-so-desirable item. Then someone sighed, "Wouldn't it be grand to start in and just do the whole house over? If it just didn't cost so much!" The demonstrator continued, "A single touch sometimes can make or mar a room."

Right away I thought of honey in this renovating and comparison idea. If you use nature's finest sweet just right—much as the decorator might use color combinations, contrasts, or skillful blending of appointments (don't let anyone tell you that cooks aren't artists, too!) you can produce results just as satisfying. And it doesn't cost a small fortune, as revamping a house does!

So, if you are having menu blues, vegetable difficulties, or desserts are in the doldrums, why don't you resolve, here and now, to go over some of those honey recipes you have thought you would try—some day? It costs so little for the actual amount of honey used. A bit of imagination, a bit of experimenting on your own can bring such rich rewards. Honey, properly used, can "make" a whole meal; add a new taste fillip to jaded old favorite recipes.

As a starter, prepare a big bowl of fresh fruits similar to those in the photo—grapefruit, bananas, oranges, bits of unpeeled apples; add a dash of salt and drizzle with honey; toss lightly and serve slightly chilled.

Then go on to these:

Honey Peparoons

Two egg whites, ⅓ cup honey, ¼ teaspoon salt, 1 teaspoon vanilla, 2 tablespoons melted butter, ¾ cup chopped nuts, and 3½ cups whole wheat flakes.

Beat egg whites until stiff but not dry. Beat honey in gradually; add salt, flavoring, butter, nutmeats, and cereal. Mix carefully. Drop by teaspoonfuls onto greased baking sheet. Bake in moderate oven, 350 degrees F., about 15 minutes. Remove from pan immediately. Yield: 3½ dozen (2 inches in diameter).

Honey Popcorn Balls

Two thirds cup honey, 1½ cups sugar, ⅓ cup water, 1 teaspoon vinegar, ¼ teaspoon salt, 3 tablespoons butter, 1 cup large peanuts, 2½ quarts unsalted popcorn.

Combine honey, sugar, water, vinegar, and salt in heavy saucepan. Place over low heat, stirring until mixture begins to boil. Then, without stirring, cook to hard ball stage. Remove from heat; add butter, stirring only enough to combine with other ingredients. Add peanuts. Pour over popcorn in large bowl using wooden spoon to mix. With hands slightly greased form into balls. Wrap in waxed paper at once. To make them festive insert peppermint stick candy for handles.

Honey Drop Cookies

Two thirds cup shortening, 1 cup sugar, ½ cup honey, 2 eggs, ½ teaspoon vanilla, 1¾ cups of sifted flour, ½ teaspoon soda, ¼ teaspoon mace, ¼ teaspoon salt, and 1 cup broken pecan nutmeats.

Melt shortening; cool. Add sugar and honey, mixing well. Sift together flour, soda, mace, and salt; add to first mixture. Add nutmeats; mix well. Drop by teaspoon on greased baking sheet, well apart. Bake in moderate oven, 375 degrees F., 8 to 10 minutes. Remove from pan immediately.

Aurora, Nebr.

Diary of a Real Amateur Beekeeper

By Mrs. Nellie E. Baune, Cottonwood, Idaho

(Continued from December)

June 28 One of the neighbors telephoned me this morning to say that there was a swarm of bees in the corner of their fence. I quickly found a nice clean apple box, put strips over the cracks, and hurried down to get them before they flew away.

I wore gloves, so it wasn't much of a job to brush them off the corner brace into the box. I put on the cover I'd made, and brought them home. So now we have two swarms. I'm going to get some more hives.

July 13 When Bill came in at noon he remarked, "There's a swarm of bees up in that apple tree by the well."

"Well, let's get them," I exclaimed.

"It's awfully high up," Bill said doubtfully.

After examining the swarm we decided that I should climb the ladder to steady the branch and sort of hold it, while Bill climbed the tree and sawed it off. I put a can of Denver mud in my pocket for the stings, as we didn't have time to hunt for any headgear. We both got stung, but the Mud kept the stings from hurting or swelling.

By tying a light rope around the limb we lowered it to the ground where we scraped the bees off into a nice new hive. Some leaves and small branches fell in, too. We just let them stay as neither of us wanted to plunge our hands into the mass of buzzing bees.

So now tonight we have three hives of bees. I guess we won't get any honey from them this year but, oh, how I do hope we get some from the old hive!

July 19 We've had quite a bit of sunshine but now it is raining again. Rain and mud, mud and rain! I think the weather has gone crazy. If I have to clean up much more mud I'm going crazy, too. We just managed to get the hay up before it began again.

August 2 Today is my birthday, but all the celebrating I did was to cook for a combine crew. They combine for a day, watch it rain the next day, and wait for it to get dry the next. I wonder if we'll ever get our wheat cut. I just know those new hives are going to starve.

September 29 Since it was really chilly today, I went out to take the super off. Was I ever disappointed! There wasn't a drop of honey in it. I put the lid back on, brought the super to the house, and disgustedly put it away.

I can't blame the bees. It's no use to blame the weather, but it is disappointing. Every time I've looked towards that stand this summer, I've thought how good that honey was going to taste. But I guess it is just this miserable rain, rain, all the time.

February 3 Since we've had such mild weather this winter we just left the bees out. Anyway, if we are going to keep on having such wet weather I think I'd better raise ducks instead of bees.

March 3 Bill is disgusted with the bee business, but I finally persuaded him to help this morning. We are going to put the apple box of bees in the new hive, but when Bill lifted it he said it seemed to be quite heavy, so we knew there must be quite a bit of honey in it. We just put the apple box up on top of the new hive.

"Maybe," said Bill hopefully, "They'll see how much nicer the hive is than the apple box, and go in by themselves if we leave a little crack in the lid."

I was doubtful, but didn't want to try changing them if they had a lot of honey, so that's the way we left them.

June 1 Well, school is over. I'm glad of a vacation. Driving so far every day, trying to look after my home, has just been too much. We haven't put any supers on the hives this year. There just hasn't been time for everything.

The bees didn't go into that hive either. I guess we should have known they wouldn't. It was just wishful thinking on our part.

July 9 I was out looking at the apple trees, and just roaming around looking at things in general this afternoon. I opened the door to the small chicken house. There's a swarm of bees between the walls! Was I ever surprised! Now what

(Continued on page 55)

Second Glances

By C. M. Isaacson

A well planned honey house can do much towards making beekeeping, whether on a large or small scale, both profitable or pleasurable (page 737). The one described by Mr. Edwards, while not large, has surely been arranged for efficiency, and even comfort (seriously, I approve of that rocking chair, even if there are times when one would have to resolutely shut his eyes to its attractions!). And before one gets into the rush and hurry evil of large-scale operation, that bee box can be of real help. I used one for years.

A fireweed honey flow can be one of the most intense known if conditions are just right (no, don't ask me either just what those conditions are). I have seen a 125-lb. **average** gathered in slightly over two weeks. As Mr. Arant mentions, the honey was very white in color but only of fair body — I believe the moisture content was around 19 percent. I can appreciate also his telling of fire and bear dangers as I have experienced damage from both here in the cut-over areas of Minnesota (page 740).

Cold is not as injurious as wet, says the 18th century writer (page 744-745), which goes to show how much we think of as modern discovery was known long ago—even if not practiced generally then. "Swarming weather" was also known to John Mortimer, and the uselessness of noise-making to persuade a swarm to settle. His book on agriculture must be of real interest.

The term "colony morale" is often used to describe the general spirit with which bees defend and care for their home—and when one has experienced the gentleness of a swarm this newly awakened consciousness a short while later can be quite surprising, as Mrs. Baune found (page 746). But speaking of beginner's good fortune, that her bees survived after the late transferring, all the moving in and out, cold weather, etc., it is also surprising. I know—I also violated all "rules" when I first began—and the bees thrived!

Rapid flows — light honey. Most beekeepers in the clover regions know the truth of that statement by R. L. Parker (page 749). But that white sweet clover honey is "insipid and almost flavorless" will call for comment, I believe. Rather, it has a distinct flavor, sometimes almost strong in comparison to white Dutch —and I have tasted that produced in prairie regions where it was practically the only source of nectar.

English weather doubtless can present a greater trial than we generally find here in the U. S., but I have seen quite a few springs here when colonies gathered little or no early (April through June) honey. I have fed a thousand pounds of sugar a day the first three days of July to colonies filled with ten pounds or more of bees and brood in ten to twelve frames that they were just starting to suck. A month later we had a small crop in the supers. (page 750.)

Grey bees are on the increase in many parts of the country, but even more in use, I believe, are crosses of grey and Italian strains. They are vigorous, good winterers as a rule, and reasonably gentle, but are inclined to swarm considerably (page 756).

A truly young person never quits, age or infirmities notwithstanding. I hope I may be permitted to say that Editor Root is truly such a person. May we be hearing from him for a long time to come. A speedy and complete recovery, Mr. Root (page 757).

Salesmanship is again of value in disposing of honey these days—no longer is it a matter of apportioning out our crop. So Editor Deyell's account of his selling experiences should be worth a second glance to many of us. Attract attention, then furnish a product that will bring repeat sales. It's a good formula.

Should honey price support be pushed? (Page 765.) It's a hard question, and one to be decided soon. We have to make a living—and yet there are those of us who shrink a bit from the thought of regulations and more regulations which would inevitably enter into our business. Let's give it serious thought. And —if we support agencies such as our American Honey Institute, perhaps we can work our own way out. Let's try it.

XUM

A Talk to Beekeepers

By M. J. Deyell

Another Year

Here we are, on the threshold of 1949. We do not know what is ahead of us and it is just as well we don't. We live one day at a time. I have developed a philosophy of life to make each day an adventure in living. Each morning ushers in a new day and I have come to look forward to each new day with anticipation. I never know what new experience awaits me.

This same philosophy, if I may call it such, may be applied to beekeeping. We may look forward to a honey crop and be disappointed. On the other hand, we may not look for a large crop and perhaps secure an unusually good one. And so it goes. This past season some of you beginner beekeepers were disappointed in not securing a larger crop. It is safe to say that some of you were agreeably surprised with the amount of surplus honey you secured.

Just the other day I received a letter from a beginner beekeeper in Pennsylvania who installed a 3-lb. package of bees during early May. This package developed rapidly into a colony that cast two swarms. Each of the swarms put up surplus honey before the end of the season, as did the parent colony. This beginner appeared to be very happy when he wrote. I hope he does not assume that he is assured of such success every season. He will have poor crops as well as good ones.

Back-lot or Hobby Beekeepers

At least one thing can be said in favor of this class of beekeepers—they render a service to the community in which they live because their bees help pollinate fruits, vegetables, and legumes within flying distance of the apiaries. If once in a while a back-lot beekeeper does not secure much surplus, he can be assured that his bees are rendering a worthwhile service to agriculture.

The Average Beekeeper Fails to Realize the Importance of Bees

It is not so many years ago that I failed to comprehend the importance of the beekeeping industry to agriculture. Many people engaged in agriculture are just now beginning to realize the importance of bees.

I quote from Bulletin E-584 entitled "The Dependence of Agriculture on the Beekeeping Industry":

"The principle role of the honey bee is not in the production of honey and beeswax, as is commonly supposed, but in the pollination of agricultural crops for the production of seed and fruit. Without insects to effect pollination, many species of plants will not set seed or produce fruit no matter how well they are cultivated, fertilized, and protected from diseases and pests. . .

"The fertilization of flowers is so imperative that beekeeping must be carried on to maintain a profitable agriculture. Owing to conditions brought about by the recent war, of which increased acreage of insect-pollinated seed crops is but one, safeguarding the beekeeping industry has become doubly urgent. Beekeeping can be mastered only through years of experience. It cannot be learned as a trade is learned and there is no floating population of persons seeking employment in beekeeping. The fact that bees have a propensity for stinging discourages many people from keeping them and only certain individuals possess the proper temperament to be beekeepers. For these reasons every experienced beekeeper should be encouraged to continue with his bees. It may even become necessary to subsidize the keeping of bees, since there is no practical substitute for honey bees in the transfer of pollen from flower to flower and from plant to plant."

It would be well for beekeepers to secure this Bulletin E-584 put out by the Unted States Department of Agriculture, Bureau of Entomology and Plant Quarantine. It is a gold mine of information on the importance of bees to our agriculture.

My Grandfather's Apiary

I recall vividly watching from a safe distance my grandfather manipulating his hives of bees. This was up in Victoria County, Ontario. At that time surplus from alsike clover and basswood constituted the major sources of honey gathered during the summer months. Grandmother used to serve this delicious white honey in glass saucers. The glass had a sort of greenish hue

which added a little color to the honey and seemed to make it taste better. I can never forget the flavor of that honey. I can still taste it.

My earliest recollection of honey was digging it out of a five-gallon can, with the top cut out, during midwinter. The honey was crystallized and almost snow white.

I occasionally visit my brother, a commercial beekeeper in Victoria County, Ontario. He has four boys. While taking a meal with the family recently, a large brick of crystallized honey on a plate was started around the table. Each of the boys cut off a sizeable chunk and of course I followed suit, which wasn't at all difficult for me. When I saw my brother's family eat honey I did not wonder that the per-capita consumption of honey in Canada is somewhat higher than it is in this country.

It is said that about 90 percent of the honey that reaches the table in Canada is in crystallized form. This does away with dribbling honey from the container to one's plate, and in the case of children, from the plate to their mouths. Perhaps that is one reason why more liquid honey is not sold in this country. Many beekeepers and others who now use honey have it in dispensers so that the honey may be kept clean, and poured onto a plate or toast conveniently, without any dribbling.

More About the Hobby Beekeeper

Some people who start keeping bees as a sideline or hobby develop their hobbies into a vocation. This is as it should be. Some who become interested in bees imagine that they can launch out into the business on a large scale and be successful. Beekeeping is not learned in a day or a year. It is entirely possible, however, to acquire within a reasonable length of time a working knowledge of the principles that underlie success in beekeeping, and then to apply these principles to the business in order to be successful.

The Best Way to Learn Beekeeping

Obviously one should read reliable bee books and bee journals. It is also well to associate with beekeepers whenever possible. Attend beekeepers' meetings—county, state, and national—as often as possible. Listen to talks given. Talk with beekeepers. If you do not understand all that speakers are attempting to say, do not hesitate to ask questions. Quite often speakers talk over the heads of beginners. This is unfortunate. Those appearing on programs should remember that there are beginners in the audience who do not understand the ordinary terminology applied to bees and beekeeping practices. For example, when a speaker mentions foundation he should always say comb foundation. If he doesn't, the beginner may think that foundation is something to put underneath the hive to hold it up.

I have perhaps told you about the young chap interested in bees who attended one of the Ohio State winter bee meetings. He sat on the front seat drinking in every word of a talk on package bees. At the conclusion of the talk the young chap raised his hand to ask a question, namely, "What is the difference between a package bee and a regular bee?" Some in the audience smiled but the speaker took time to answer the question.

For the benefit of beginners I should like to suggest that you pay some attention to those who have made good in beekeeping and especially those who have made their living from bees. Some inexperienced beekeepers may have some fine spun theories about beekeeping but may not actually know very much about the business. On the other hand, most commercial beekeepers who depend wholly on bees for a livelihood and are making good, can usually be relied upon for sound beekeeping information.

Beekeeping Still in Its Infancy

If we could look forward 50 or 100 years we would likely see many more bees kept than are found throughout the country today. One hive of bees for each 250 acres (approximately) in the United States is a meager number of bees. Fortunately this does not include thousands of swarms found in crevises of rocks, bee trees, and sidings of buildings. I have never heard anyone give an estimate of the number of so-called wild bees throughout the country.

Don't Miss the Poetry in Beekeeping

Some commercial beekeepers with many outyards rush about from apiary to apiary during the height of the season, not finding time to enjoy

(Continued on page 53)

Asked and Answered

Removing Inner Cover Block During Winter

Question: Is it good practice to leave the little inner cover block off during the winter? If so, should it be entirely or only partly removed, and should there be a piece of burlap or other protection placed between the outer and inner covers? If the bees have an upper entrance, does it help or hinder them to have this inner cover block removed?—Charlotte B. Waldron, Pa.

Answer: In our opinion it is unnecessary to remove the block covering the hole of the inner cover if you have an upper front entrance in each of your hives. If your hives do not have upper entrances a small opening in the inner cover would appear to be beneficial. This small opening would tend to release some excess moisture that would form in the hive during the cold winter months. For some years we have been using an augur hole about ¾ in. in diameter just below the hand hold in the front of the hive. This small opening helps the bees to expel excess moisture during the winter. It also gives the bees a chance to fly out during mild winter days.

* * * * *

Bees Abandon Brood Chambers for Empty Super Above

Question: I purchased a couple of hives complete and extra equipment and some bees from a beekeeper. I set up one of the hives a little less than two months ago with the bees. I had the brood chamber filled with the frames containing foundation and I had an empty deep super set on top in which I hadn't put the frames. Upon examination a few days ago I found that somehow or other the little opening in the inner cover was left open and the bees had chosen the top empty super and had established themselves there. What I would like to know is how to go about getting the bees to establish themselves in the lower chamber.—H. E. Shay, Ohio.

Answer: It would appear that the bees preferred the upper chamber to the lower one. Bees do seemingly peculiar things at times. There may have been more warmth in the upper chamber than in the lower one and consequently the bees chose the upper chamber. As we understand it, this upper chamber does not have frames with full sheets of foundation. It seems likely that the bees have built the combs in crisscross fashion. It would be inadvisable to try to get the bees onto straight wired combs at this season of the year because they would not draw out the full sheets of foundation so late in the season (November 5). Our suggestion is that you take away the lower hive, set the upper one containing the bees on the hive stand, and winter the bees in this chamber. It is possible that you may have to feed the bees sugar syrup to supply any deficiency in stores . Next spring at the beginning of the fruit bloom honey flow when the nectar is coming in well, you may place the super containing frames of full sheets of foundation on top of the hive of bees. There is a tendency for bees to go up rather than down, so they should move upward onto the frames of foundation, especially when honey is coming in. After the queen has begun to lay in the combs of the super above, a queen excluder should be placed under the top super so that the queen can not go down again into the old brood chamber. As soon as the brood has emerged from the combs below (24 days after excluder is put on hive), the lower hive can be taken away, the hive containing the queen set in its place, the bees shaken out in front, and the wax saved.

* * * * *

Number of Colonies Per Acre of Clover

Question: We are much interested in growing a sizeable acreage of both the annual and biennial sweet clover to supplement the honey flow from the common alsike and white clover growing in this section. Providing soil conditions and temperature are favorable, do you think that I would be overstocking to keep 150 colonies near a 50-acre planting?

Have you information as to the experience of people trying to produce comb honey from a sweet clover honey flow? Also, would not the bloom from sweet clover closely follow the flow from our white clover thereby making a continuous honey flow until the bees start work on the fall flowers.—C. L. Paine, N. H.

Answer: It should be possible for you to produce the section comb honey from sweet clover, especially if there is some white Dutch clover and alsike growing in the vicinity. The white Dutch and alsike will likely come into bloom before the sweet clover and consequently the bees will get started on these sources first. The sweet clover lasts longer than other clovers. As to your locating 150 hives near a 50-acre planting, this perhaps could be done, provided there are other sources of nectar nearby. It is a fact, however, that during some

seasons sweet clover does not seem to yield nectar as well as it does during other seasons. Just why this is we do not know. Sweet clover needs dry warm weather for best results in honey production.

* * * * *

Keeping Shallow Food Chamber Below the Standard Brood Chamber

Question: I produce only comb honey as there isn't any demand for liquid honey here. I leave my shallow depth food chambers on the year around, so I put them on the bottom board underneath the brood chamber. That does away with lifting them off when examining the colony in spring and summer. It also puts my comb honey supers next to the brood frames where bees have easy access to them. The shallow supers on the bottom have little honey but some brood. The deep brood chamber is full to the bottom bars.—Geo. A. Thomas, W. Va.

Answer: It seems that you may have some thing. We have tried a few colonies with the shallow extracting super below the standard brood chamber. We want to try some more this way in the future. During the honey flow it seems that there is a distinct advantage in having the shallow brood super below. The bees can then use the lower shallow super of the double brood chamber for clustering space during hot weather. If the queen wishes to occupy some of the combs in the shallow super below as well as the combs in the standard super, all well and good. One disadvantage in trying to use the shallow super above the standard super during the honey flow is that queen cells are quite easily started along the bottom bars of the shallow super, as you have doubtless found out. When the shallow super is put below during the honey flow there is less likelihood of queen cells being built.

* * * * *

A Possible Method of Heating Honey

Question: I have a 60-gallon honey tank and wish to heat with an electric water heater of the insert type. Will this be too much heat and will it darken the honey? The water heater insert is 115 volts, 1250 watts.—Harry E. Meyers, Wash.

Answer: We do not recall that this particular problem has ever been raised before. Attempting to advise you may seem a little presumptuous then, in view of the fact that we have had no experience with such an idea. On general principles, it has been well established that instead of putting the steam coil directly into the honey of a honey tank it is better to put it into water and let the heated water surround the honey as would be the case if a jacketed tank were used. From this it would seem preferable to put the electric immersion heater in water under the honey. Even then, it will be necessary to keep the honey in circulation, for if the water under the honey were too hot it would cause some darkening of the honey. In all accepted plans that we know of for heating honey, even when there is steam or hot water in a jacket surrounding the honey, it is preferable to keep the honey in motion, usually with an agitator arranged like the propeller of a boat. The speed of the propeller should be just enough to keep the honey in circulation. Having said this, we wish to make a recommendation: You already have a tank and immersion heater. With about a half tankful of honey, say 30 gallons, immerse the electric heater in the honey and as soon as the electricity is turned on, keep it in motion as though stirring the honey. This will enable you to test what seems to us a new idea. If this heater is kept constantly in motion, which can easily be done if the plan works, by a simple mechanism operated by a small motor, considerable complication would be avoided, and if the heater is kept constantly moving and the electricity is turned off before it is taken out of the honey, we do not believe you will have much trouble from burning. If lifted out of the honey with the current turned on, it will immediately get too hot and burn the honey adhering to it. This will make it impossible to avoid a caramel-like flavor in the honey. We suggest that you try the plan on a half tank or even less if there is depth enough to immerse the heater.

* * * * *

Reasons for Swarming

Question: I teach biology in the High School at Everett, Pa. One of our text books states that one reason for bees swarming is "their lack of food". I disagree with this statement as all or nearly all swarming, according to my experience, has been when the honey flow was good. What do you believe to be the reasons for bees swarming?—H. E. Hines, Pa.

Answer: The prime cause of swarming is congestion within the hive which means a crowded condition due to an over-supply of bees and brood. Swarming can usually be prevented or controlled by supplying hives of bees with comb space, which means putting on supers a little in advance of when they are actually needed.

XUM

Editorials

Looking Ahead What does the future hold for beekeeping? That is the question commercial beekeepers would like to have answered. There appear to be different opinions. While the immediate future looks none too rosy, a long view seems to indicate that there is a future for our industry.

One thing seems certain — beekeeping being an essential branch of agriculture, more bees will have to be kept in the future to meet the needs for pollination of farm crops.

To increase the number of hives of bees in the U. S. A. there must be some incentive for beekeepers to enlarge their present holdings and for beginners to launch out into beekeeping. This means that honey prices must be stabilized to the level that gives the producer a fair margin of profit or he will have to be paid for pollinating service rendered by his bees.

A share-the-crop plan involving the seed grower and beekeeper has been practiced on a limited scale in some states and it appears to have possibilities.

Some favor what virtually amounts to subsidizing our industry — payment by the government of so much per colony for pollination. For some clovers more than one colony per acre is needed for maximum pollination. This would reduce the amount of surplus honey secured and warrant payment for pollination service.

At the present the trend of honey prices is up rather than down which is encouraging.

Our industry must go on. Problems confronting it will eventually be solved.

* * * * *

Importance of Pollen Some years ago beekeepers wrote us about how to get rid of pollen in combs. At present some beekeepers inquire about purchasing pollen or combs of pollen to make up a deficiency of pollen in their hives.

In some restricted regions beekeepers still complain about having too much pollen but most beekeepers admit a pollen shortage at certain seasons of the year. It has been said on good authority that one pound of pollen is required to produce one pound of bees. The protein content of larval food is extremely important.

The article "Bee-Gathered Pollen on the Pacific Coast" by Vansell and Todd on page 18 should be read with unusual interest.

* * * * *

Ladino in New Hampshire Reports continue to come in regarding Ladino clover. A beekeeper in New Hampshire says that Ladino is the best honey plant in his section of the country. His colonies averaged over 150 pounds and had to draw out full sheets of foundation in the supers. There were nearly 200 acres of Ladino near his bees.

While visiting beekeepers in North Carolina recently, favorable reports on Ladino were heard. One experienced beekeeper expressed his opinion that this legume would eventually change the beekeeping picture throughout the section of the state where clovers are grown. We hope he is right.

A 14-acre field of Ladino adjacent to one of the editor's apiaries was clipped periodically for chicken farm forage. The bloom continued until early October and bees were found on it during warm days. We shall appreciate hearing from other beekeepers.

* * * * *

Honey — an Energy Food It would appear that some beekeepers and handlers of honey may be missing an opportunity, when advertising honey, in failing to stress the fact that honey is rich in ready energy sugars — levulose and dextrose.

People are naturally interested in foods that supply "pep," which is needed today. We have an authenticated report of the Army's football team, which, on the forenoon of the day they played Harvard, had a combined breakfast-lunch consisting of honey, whole wheat toast, steak, and milk.

The American Honey Institute, in its recent advertising with some of the professional journals, has emphasized the energy properties of honey; in fact, the advertising copy is built around the word "energy".

The fact that these ads have "pulled" well seems to indicate that this energy emphasis is properly placed.

* * * * *

We Need Gentle Bees We receive letters quite frequently from beekeepers over the country stating that a few of their colonies are vicious, in fact unmanageable, and that it seems necessary to get rid of the bees by using Cyanogas.

It is unfortunate for a beekeeper in a town or city where neighbors are nearby, to have a few colonies that insist on making trouble for owners and neighbors. In some instances bees become cross as a result of manipulating the hives during weather when nectar is not available or during late evening and early morning. Hives should be opened only during the middle of the day when bees are busy carrying nectar and pollen.

It seems increasingly necessary to have bees that are reasonably gentle to handle. Our queen breeders have a project in producing a strain of bees that combines gentleness with industry. This objective can be attained.

* * * * *

Drones These gentlemen of leisure are herded together in one side of the hive and eventually are driven out of the hive when cool fall weather comes. About November 1 we watched some workers lead drones out of and away from the hive entrance, then dump them off the alighting board. These drones did their best to regain entrance to the hive but in most cases were unsuccessful. The guards on duty kept vigilant watch.

Many attempts have been made to keep the drone population down. The best method we know is to have the maximum amount of good combs consisting of worker cells, in the brood chambers. Even when nothing but full sheets of worker comb foundation are used in brood frames the bees will usually alter the midrib of some combs by substituting drone for worker cells.

One authority says that approximately 10 percent of the cells in a brood chamber will eventually be drone cells. If this be true it would seem feasible to have one comb of drone cells in each ten-frame brood chamber to accommodate queens when they have the urge to lay unfertile eggs. At least this might prevent bees from changing parts of perfectly good worker cell combs into patches of drone cells.

Possibly some readers are already using a comb consisting of drone cells in each brood chamber. We did this some years ago in our queen rearing apiary to help insure an abundance of drones for mating purposes, but we have not tried it in honey producing apiaries. It may be worth trying.

* * * * *

Upper Entrances During Winter of 1947-'48 at Medina We use a ¾-inch auger hole midway in the second story, and a small bottom entrance in each two-story hive. Some colonies had a small entrance at the top.

Colonies with small upper and lower entrances came through the severe winter in fairly good condition and only a few required package bees to bring them up to normal.

Colonies with restricted bottom entrances only, died, as did colonies that had Nosema. None of these was packed. Of late years we have not used packing because apparently so little is gained for so much work. This does not mean that we do not recognize the value of packing when and where it is needed.

If the reader has never tried upper middle entrances it is not too late now for him to bore a ¾-inch auger hole four or five inches below the top of the upper story. Try this on a few colonies along with some two-story colonies of the same strength with bottom restricted entrances.

* * * * *

Fence Post Honey Some years ago a new helper in our apiaries asked the boys where the bees were getting the honey. There was a good flow on and none of us knew exactly where the honey was coming from. One of the boys told this chap that the bees were storing fence post honey. Later on during the day the young fellow said, "I didn't know bees got honey from fence posts."

All this is by way of saying that we still have a lot to learn about sources of nectar and conditions under which it is secreted. It would appear that a project should be undertaken by those well qualified to learn more about fence post honey.

XUM

Just News

North Jersey Beekeepers will meet at the Bergen County Court House on Monday evening, January 17, at 8 p.m. It was announced at the executive meeting that this will be a special meeting and the changes to the constitution printed in the recent news letter will be voted upon. Two good speakers have been obtained for this meeting and the straw skep sent by our recent guest Mr. R. C. A. Croes of Holland will be on display. Don't miss this meeting. It promises to be one of the best ever.—Rose Leswing, Cor. Sec.

* * * * *

The Southern Tier Beekeepers' Association meeting will be held on January 19 at Gas Auditorium in Binghamton, N. Y. Dr. E. J. Dyce of Cornell University will speak on grading and packaging honey.

* * * * *

The 27th Annual North Dakota Beekeepers' Association meeting will be held at the No. Dak. Agricultural College, Fargo, on Friday, January 21.—Arvid P. Benson, Sec.-Treas.

* * * * *

The Westchester County Beekeepers' Association will hold its regular monthly meeting at 2:30 p.m. on Sunday, January 16, at the Odd Fellows Hall, 20 Lockwood Avenue, New Rochelle, N. Y. Election of officers for the coming year will be held at this meeting so all members are urged to attend and vote. A guest speaker is expected and visitors will be welcome. Refreshments will be served.—B. F. Miller, Publicity.

* * * * *

The Twenty Seventh Annual Short Course in Beekeeping will be held at the University of Manitoba in Winnipeg, January 24 to February 4, 1949. The lecturers are A. V. Michener, E. C. Martin, and Ed. Braun. Tuition fee is $5.00.

* * * * *

The Michigan State Beekeepers' winter meeting will be held in Abbot Hall of Agricultural College, E. Lansing, on January 26 and 27. Out-of-state speakers will be Chas. A. Reese, Extension Apiarist of Ohio, a representative from The G. B. Lewis Co., Watertown, Wis., and M. J. Deyell, of Gleanings in Bee Culture. A cordial invitation to all.

* * * * *

The July, 1948, issue of La Gazette Apicole, edited by Georges Alphandery, Montfavet, France, is one of the most interesting issues of a bee journal ever to reach us. It is the 500th issue of the Gazette. All advertising is omitted and there is nothing about practical beekeeping in the entire issue. Instead the editor reprints articles from a number of noted authors who have included bees in their literary efforts, making this one of the most interesting and significant copies of a bee journal yet to appear. We look forward to the thousandth issue toward which the editor now aims.—E. F. Phillips.

MID-WINTER INSPECTION

(Continued from page 17)

combs will not have time to become warm in the sunshine and go inside.

There are several conditions that may be found: **first,** a strong colony with only a few pounds of honey left; **second,** a medium colony with **hardly** enough to last till warm weather; **third,** a weak colony with **plenty** of honey; **fourth,** a queenless colony suffering from dysentery as a result of restlessness and brood rearing; **fifth,** a handful of bees and a laying queen. One of the last two colonies may have considerable pollen.

Case I. The strong colony on the point of starvation may be reduced to one story by taking the light combs from which it has moved. Then a full super may be supplied from colonies which have plenty, taking only the outer combs for the purpose. Since bees are still clustered and haven't been flying, little effort is required to take the honey. These combs should be compared after they are collected, placing the heavier combs and uncapped combs near the center of the super so that a winter nest is provided in which the bees may cluster. Combs with honey removed from one side should be placed toward the edge with the honey side inward. The large colony will soon desert its few pounds and open a nice-shaped area of cells

(Continued on page 53)

From North, East, West and South

SOUTHERN CALIFORNIA, Dec. 3

Weather: No rain in southern California yet. The past twelve months have been one of the driest periods of which we have any record. We look and hope and pray for rain. Bees have been able to fly at their pleasure and in a few cases have found a little nectar. We have had an unusual amount of high, drying wind — North winds they are called—and we all agree that they do the country no good. They break off dry limbs, blow off leaves, and make a lot of work around the yard as well as work for the housewife cleaning up the dust.

Market: Who can say just what the market situation is? Buyers are ready to buy but at a price that beekeepers who have honey are reluctant to accept. Some beekeepers have joined the co-ops and have received advances on the honey delivered and will receive additional settlements when the pools are sold. We see no reason for changing our former statements of 10 cents for white and 7 cents for the amber grades as about the going price offered to the beekeeper.

Miscellaneous: The California State Beekeepers' Association met for their 59th annual meeting in San Bernardino December 1, 2, and 3, 1948. President W. C. Miles of San Bernardino presided. Such men as Dr. J. E. Eckert of the University of California, H. M. Krebs, State Apiary Inspector, and many other men and women of note took part in carrying on a most interesting program. Such subjects as "Cost of Production" by Jim Crawford of Fullerton; "Honey Displays and Their Influence on the Retail Sales" by George Elers of Orange; "The Role of Cooperatives as a Stabilizing Factor in Honey Marketing" by Don Lee of the Sioux Honey Producers' Co-op, and many others made it a very interesting and educational meeting.

We could not help thinking of the difference in the trend of thought throughout the meeting as compared to our meetings of 30, 40, and 50 years ago. In those days the program usually consisted of talks on such subjects as management, the making of increase, queen raising, honey production, and kindred subjects. Today most of our time is usually taken up with subjects relating to the selling and marketing of honey.

There was a good attendance of from 150 to 200 at the meetings. The annual banquet was held in the California Hotel Thursday evening.

Beekeepers have their pencils sharp and are doing a lot of figuring. This picking up five, six hundred—yes, a thousand colonies and moving them from a few hundred to as much as a few thousand miles runs into a big expense account. Will a good rain and a good honey crop in southern California iron out this line of work? We think so.—L. L. Andrews, Corona, Calif.

NORTHERN CALIFORNIA, Dec. 1

The weather of this past month can be summed up rather quickly — comfortable but on the dry side. Only 7/100 of an inch of rain fell and this on the first three days of the month. Of course, considerable snow fell in the mountains and more rain came to certain areas north of here. (It has snowed but twice in the 17 years I have lived at Davis.)

Condition of Colonies: The temperatures have been sufficiently high during the daytime to permit bee flight on practically every day. Consequently, the activity would tend to increase the consumption of stores since no nectar source is available. Some beekeepers have reported that their colonies are lighter than they would like and neglected colonies in some areas will be short of stores before spring. On the whole, though, colonies are in better shape this fall than last. Fewer colonies are being wintered than last year. Many have been moved into the orchard areas and to the vicinity of eucalyptus groves.

XUM

Marketing Conditions: Storekeepers state that honey is moving faster than during the summer months and some wholesale lots have been moved in northern California during the past month. Prices have not weakened and beekeepers are hoping they will increase because they are now from two to four cents under what they should be at the wholesale level. Consequently, a number of beekeepers are holding their honey crop in the hope that prices during the winter season will be more favorable.

If a commercial beekeeper allows 50 percent more for his wages than he pays his hired help, and considers such matters as depreciation on all buildings and equipment, interest on capital invested, transportation expenses as well as general maintenance, he will find that he will have to produce around 100 pounds of honey per hive and sell it at between 12 and 15 cents per pound in order to break even. If he sells for less, then he is not receiving as much as he should for his labor and will be unable to replace his equipment or maintain his trucks at their full efficiency. So, why should any beekeeper sell his honey for less than the cost of production? This was done between 1929 and 1941 and the industry reached a new low for efficiency and general economy.

Beekeeping and Agricultural Relations: At a recent meeting of the California Farm Bureau Federation in Sacramento, the section on Field Crops passed the following resolution: "The Field Crops Department requests the California Farm Bureau Federation and the American Farm Bureau Federation to seek the establishment of a U.S.D.A. support price on honey to the end that the beekeeping industry may become better stabilized. Stabilization of this industry will increase the bee population of this state which, in turn, will have an important bearing on the yields of many of our California crops." This is evidence of the fact that the wide-awake members of agriculture appreciate the value of the honey bee in the production of numerous field crops and want to have the continued benefit of colonies of bees in the vicinity of their fields.

This resolution will have greater weight coming from the seed growers than if it came from beekeeping organizations. Now what is needed all over the country is more of the same feeling toward bees and their value to agriculture. There is also need for more beekeepers to become members of the Farm Bureau Federation so that they can discuss their problems with those who benefit most by the activities of bees.

An alfalfa seed grower was in my office yesterday, inquiring about the possibility of the purchase of colonies for seed production. He said that he wanted from three to four colonies of bees per acre and knew that the honey producer could not make it pay by producing honey. (In some cases alfalfa will yield up to 400 pounds of honey per acre but only under **very favorable** conditions.) I discouraged him about owning bees but suggested that he pay the beekeeper on the sliding scale for all seed produced above the state average for his locality, and thus make it possible for a beekeeper to bring in sufficient colonies for maximum seed production. —J. E. Eckert, University of California, Davis.

TEXAS, December 7

Weather: Winter weather came earlier than usual with the first frost some three weeks earlier than the normal date and the temperature during the month lower than the average for November. Rainfall continues below average as it has for four consecutive months. Scarcity of water remains a problem over the state, which began 15 months ago and has not been broken effectively since. Many normal running streams and reservoirs have been reduced to mere isolated water holes. This condition is especially severe in the central and eastern portions which are normally humid.

Bees and Plants: Brood rearing ended for the season during the latter part of November. Bees continue fairly active with strong inclination to robbing. In spite of a relatively poor season reports from most sections indicate that the colonies are in fairly good condition

with a good supply of young bees for winter and adequate stores although considerable spring feeding may be necessary. In some central and eastern areas colonies are weak due to lack of pasture since midsummer. Winter losses and difficult spring build-up are expected. In most areas early bloom from winter annuals will be scarce due to lack of fall rain for seed germination. Horsemint and marigold also will be scarce. Trees and shrubs remain in good condition. Legumes have not been seeded extensively so far. More clover will be seeded during winter when soil moisture becomes favorable. Old timers acquainted with the remarkable ability of native plants to come back with rain and some plants which come to the rescue when other blooms fail, note that mistletoe, the common parasitic plant of many trees and shrubs, is in good condition with the promise of bloom and a supply of nectar of which bees will take advantage on warm days during the winter months.

Market: Movement of honey in the retail market continues fair at prices which prevailed during the fall months. Two and five pound packs are moving better, indicating that consumers have resumed eating honey. Previous year's pack has disappeared and the present stock on grocers' shelves shows less price fluctuation.

Miscellaneous: Mr. S. E. McGregor, formerly of the Texas Apiary Inspection Service and since with the Bee Culture Division, U.S.D.A., has been assigned to duty in Texas with headquarters at College Station, on important beekeeping problems. He recently published results of the poisoning problem of arsenicals and DDT in the cotton area in Arizona and along the upper Rio Grande.—A. H. Alex, San Antonio, Texas.

WYOMING, December 1

Weather: My last article for this department written the first week in July mentioned the critical need of moisture if the honey flow was to continue. Rain came and all through July and the first half of August we had showers enough to keep the bloom coming along with a fairly good flow. It was more rain than we have had in these two crucial months for a number of years, almost reminding us of the good old days back in the 20's.

Condition of Bees: Colonies are going into winter in good average condition as to stores, colony strength, and young queens.

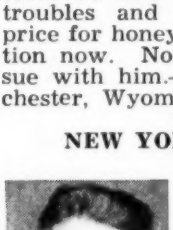
Honey Plants: Nectar-producing plants in this semi-arid state narrow down to a very few, of which alfalfa and sweet clover are the principal ones. Alfalfa weevil is responsible for many fields being plowed up and planted to small grain or pasture grass. Farmers and highway maintenance crews destroy sweet clover by mowing all possible while it is in bloom and applying the torch in inaccessible places as soon as it is dry enough. Some years ago because of a severe drouth I moved my bees down into the southwest corner of the state. The amount of sweet clover along the highways was such a large portion of all that was available in that region for bees to work on that I wrote the division maintenance office explaining the matter to them and asking that they delay mowing until the bloom was over, and received by return mail a carbon copy of their letter to their various foremen carrying out my wish. It was a big help and I believe that if beekeepers would make a concerted effort along this line the Highway Departments in the various states would cooperate as far as possible.

Market: This No. 1 problem of the industry will not be solved until we do some educational work on the value of honey. It is not possible to produce honey on a competitive price basis with commercial syrups and sugar and in these days of high prices the housewife is obliged to stretch the family budget as far as possible, and without knowing that honey is a better sweet healthwise, you can read in this department from most every state how the honey market is "dull", "the sale of honey has been rather slow", "we were unable to move all of our last year's fall crop of honey", etc., etc. But the high cost of being sick is making people health conscious, and if honey does have some virtues healthwise that are lacking in other forms of sweets, and I believe it does, the marketing problem is definitely bringing the facts to the sur-

face. Maybe we can get the doctors to say that it is "less irritating" or that "there is not a cough in a carload". If such senseless ballyhoo will finance most of the radio programs, surely something can be done for such a meritorious product of Mother Nature as Pure HONEY. The public is not concerned about how much honey is in the beekeepers' hands badly in need of a market, but if the health angle can be tapped soundly our troubles will be over. I write this after being summoned to appear before the USDA Food and Drug Administration for using such terms as "health sweet" on my labels. The department said it was "false labeling".

Miscellaneous: The state meeting of Wyoming Beekeepers' Association was held in Casper on November 18 and 19. Sterling Johnson of Lovell was re-elected President. A state barrier law against out-of-state bees was discussed based on reciprocity. A state representative of the Farm Bureau was present and pointed out the advantages of every beekeeper maintaining a membership in that organization and especially urged those interested in legislation looking toward a floor price put under honey to join at once. We know that the Farm Bureau is a big factor in shaping farm legislation. H. A. Gilbert, for many years our State Apiarist, said the use of sulfa had removed AFB from the beekeepers' troubles and that a fair market price for honey was the $64.00 question now. No one present took issue with him.—Earl C. Reed, Ranchester, Wyoming.

NEW YORK, December 7



Weather: This is December 7 and the weather is still very mild. The bees had very frequent flights and there are scattered dandelions and other plants still in bloom from which bees are able to secure occasional loads of pollen.

Conditions: Bees are in good condition for winter. Very little feeding has been necessary. Hives are heavy with stores and colonies are just moderately strong with bees. Frequent and copious showers during October and November have lifted the clovers into a very thrifty looking condition.

Market: Honey markets are rather quiet and still being offered at wide range of prices.

Miscellaneous: For quite a number of years we have used tar paper for winter with results fully as good as we used to get in wood cases. One of the greatest objections to paper has been the quality of it.—Howard M. Myers, Ransomville, N. Y.

WISCONSIN, December 1

Weather: During October and November Wisconsin had ideal weather for plants to become dormant. Rains late in the season greatly improved wintering prospects for honey - producing plants. It was just the opposite of the fall of 1947 when we had a very warm and wet October followed by a sudden heavy freeze in November which caught many plants unprepared for winter.

The Annual Convention of the Wisconsin Beekeepers' Association again was well attended with 140 members registered and 125 at the banquet. Mr. C. M. Ranum of Mount Horeb, one of the oldest members of the Wisconsin Beekeepers' Association, was given honorary recognition for his services and he was presented with an engraved fountain pen desk set.

Mr. John Long, chief of the State's Division of Bees and Honey, reported on new legislation. All beekeepers who sell honey to stores or other than retail trade must have a license to process honey under the Pure Food and Drug Law. New color grades: white, golden, and amber have been established. A new grade "Wisconsin Fancy White" may be used by anyone who has honey which qualifies.

Wisconsin's new indemnity law by which beekeepers receive $3.00 from the State Treasury for all colonies found diseased and burned by the inspector is working out very well. We do not know of any other state that has an indemnity payment law. Beekeepers who otherwise lose heavily are at least partly com-

pensated when colonies are burned. The amount of indemnity may be increased in coming years.

Wintering: Dr. C. L. Farrar reported on the relationship between large populations and honey yields. Large populations are especially important when the honey flow is early and of short duration as it was last June. Two-queen colonies with from 100,000 to 120,000 bees averaged 245 pounds of honey above winter requirements while one-queen colonies with from 50,000 to 60,000 bees averaged about 70 pounds. He pointed out that medium-sized colonies may produce a crop if the flow is of long duration, but only large colonies get a crop during a short early flow. The Wisconsin crop was less than one half of normal this year.

Dr. Farrar spoke of the severe winter of 1947-48 when we had 120 days of continuous cold weather. There were 82 days when the temperature did not go above freezing. However, he said, it doesn't make much difference whether the temperature is zero or 30 degrees below zero except that the cluster contracts more during cold weather and the bees cover less honey. Most colonies which were lost died of starvation. The **position of the honey** in the hives may be as important as the amount of honey. Some colonies starved because the queen started laying below the food supply and the cluster could not reach the honey during a long spell of cold weather. The best colonies will consume the most honey if pollen is available to the cluster in late winter and early spring. The more stores they consume the more young bees there will be in the spring. "A colony will winter successfully if it has a good population and plenty of food in the right place. If we give our time to the organization of the colonies—the position of the stores, both honey and pollen, our time will be better spent than in packing," said Dr. Farrar.

Organization: The Wisconsin Beekeepers' Association voted a change in its Constitution. All business including the election of officers will in the future be in the hands of the Board of managers consisting of the officers, the district presidents, and delegates from each county beekeepers' association in the state. This board will hold spearate meetings so the general sessions can be devoted to the program.

In the discussion on what makes an organization function successfully, we pointed out these requirements: (1) provide a program of value to the beekeepers throughout the convention, (2) avoid long drawn-out business sessions and especially politics, (3) the state organization is only as strong as its membership throughout the state — its district, county, and local associations. These organizations should have a part in the affairs of the state association.

Honey Prices seem to be stabilizing at a retail price of $1.00 for a 5-pound jar and 12 cents per pound in bulk. Demand is improving but beekeepers are losing interest in honey production because there is little profit for them at present high costs of production. — H. J. Rahmlow, Madison, Wisconsin.

OKLAHOMA, December 1

Weather: Rain fall during August, September, October, and midway through November was 8¼ in. below the 10-year average from 1938 through 1948. On October 18 we had our first frost of the season, with a low reading of 30 degrees, the chilliest of the season to date. Our only shower coming on November 27 failed to supply farmers enough rain for crops and stock water.

Honey: The U. S. Dept. of Agriculture's Bureau of Agricultural Economics reports that Oklahoma's honey crop is estimated at 1,914,000 pounds, which is quite a bit less than last year's production of 2,240,000, but the same as the state's honey crop in 1946. From the 58,000 colonies in Oklahoma an average yield of 33 pounds per colony is estimated. Last year's 64,000 colonies averaged an estimated 35 pounds. Stocks of honey in producers' hands for sale at mid-September were estimated at 957,000 pounds — only slightly less than the 963,000 on hand with the producers a year ago.

Market: The price of honey is too low compared with other commodities this year, with sugar plentiful and prices down. The flow of other

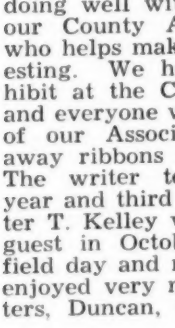
sweetenings such as syrup, molasses, and honey to market has slackened very noticeably.

Bees: Bees are in fair shape to make the winter months. However, some beekeepers did some feeding this fall. We seem to have plenty of pollen and nectar plants in this section, luckily.

Plants: Vetch, one of our leading honey plants in this section of the country, is looking bad for want of rain. We are looking hopefully forward to better weather conditions for our next year's crop.

Miscellaneous: Our Stephens County Beekeepers' Association is doing well with the cooperation of our County Agent, Fred Huffine, who helps make our meetings interesting. We had a nice booth exhibit at the County Fair this year and everyone was well pleased. Two of our Association members took away ribbons from the State Fair. The writer took first place last year and third place this year. Walter T. Kelley was our distinguished guest in October when we had a field day and meeting which we all enjoyed very much.—V. K. McMasters, Duncan, Oklahoma.

MANITOBA, December 3



Weather: My last report was written July 6. During July we had frequent, although not very heavy rains. The result was that bees were kept in their hives for much of the time during the honey flow. In spite of this, the crop is estimated at over 7,000,000 pounds in comparison with a recent ten-year average of 5,500,000 pounds.

The fall has been extremely dry, September being the driest month on record at Winnipeg, with 0.05 inches precipitation. Much trouble has been experienced in the city from cracking and leaking of water mains due to soil shrinkage.

Throughout the fall we have had predominantly clear skies and mild weather with no real cold spell to date. Lack of moisture is causing some concern for next year's crops and the less optimistic amongst us are already having fears that another dry cycle is approaching in this western country.

Marketing: This is once more the number one problem of the industry. From the figures available it looks as though the consuming public is not buying the amount of honey being presently produced. There is no export market, and it has appeared obvious to many that the only way to maintain price and the present level of production is to increase consumer demand through advertising. The other alternative is to let nature take its course and go through the old familiar cycle. That is for the price to drop to the point where beekeepers go out of business so that supply again equals demand and we are ready to start the cycle all over again.

I am inclined to think that beekeepers as a group are willing to accept the cycle rather than make any concerted effort to enlarge and stabilize the industry. The 30,000 beekeepers of Canada could constitute an aggressive sales force for the promotion of their own product. As an example, beekeepers could have honey competitions and honey exhibits at all the thousands of agricultural fairs across the country. In actual practice very few beekeepers accept any responsibility in this respect. For instance, Manitoba's beekeepers are informed of their opportunity to exhibit honey for competition at the Royal Winter Fair at Toronto, the agricultural show window of Canada. This is one of the world's greatest agricultural fairs and an excellent opportunity to display honey. About six or eight stalwarts from Manitoba exhibit fairly consistently and the remaining 3,500 beekeepers leave it to George. This is characteristic of the attitude of beekeepers in other areas and in connection with other opportunities for promoting the use of honey.

The Canadian Beekeepers' Council has anticipated marketing difficulties for some time and nearly three years ago devised a plan whereby beekeepers could buy containers marked with a five-point star. These containers cost 1/5 cent per pound more than ordinary containers and the proceeds were to be turned over to the Council by the container companies. A high percentage of beekeepers approved the plan in principle but for one reason

or another the returns were very inadequate. Most beekeepers indicate that they would prefer a compulsory container levy as they don't mind paying if all contribute.

The Council has made progress as they are cooperating with the Dominion Government Marketing Service in a limited advertising campaign beginning January, 1949.

Application was also made by the Canadian Beekeepers' Council for a government supported floor price for honey. The Council requested that the government buy honey at 15½ cents beginning May 1, 1949. The request has been considered and turned down, at least for the time being.

Honey Grading: Dominion government grading regulations have been in effect for many years. These regulations have applied only to honey shipped export or from one province to another. To date there have been no regulations in any province requiring the grading of honey produced and sold within the province. Manitoba has recently passed legislation requiring the grading of all honey sold within the province with the exception of honey sold directly from the producer to the consumer at his own establishment. Four other provinces are making progress towards the same goal. The beekeeper will be responsible for classifying, grading, and marking his own honey and it will be subject to inspection at any time.

The desirability of improving the general pack and of selling properly graded honey was brought out very definitely by an advertising man who took part in a panel discussion at our recent convention. He made the statement that no reputable advertising company would be justified in contracting to advertise honey in general when there was so much variation in the appearance, cleanliness, and keeping qualities of the product.

Miscellaneous: Sweet clover was plentiful all over Manitoba last year but the weevil wrought havoc with the seedlings last summer and pasture prospects are definitely poor in some areas.

A grasshopper outbreak is forecast for the next year and chlordane is being stocked for use in its control. Chlordane is poisonous to bees but I have been given to understand that bees don't normally suffer when it is used correctly for grasshopper control. Local beekeepers would like more information on the subject.—E. C. Martin, Provincial Apiarist.

SOUTHERN ALABAMA, Dec. 7

Weather: We have had more rain over a period of several days during the last week in November than at any time during the current year. In fact, according to reports the record for November was broken. We have heavy rains here but they usually come earlier in the year.

As to temperature, we have had only light frosts to date. Some years we have at least one heavy frost before this date. Plants that stand a light frost are still thriving.

Honey Flora: At this time of the year very few plants are in bloom here. This is far enough south so that the plants become dormant in season regardless of how warm it is.

The only wild flowers that are in bloom are the witch hazel and these have been in bloom some time. They usually bloom in December.

Miscellaneous: There is very little honey in the local stores in this neighborhood at this time, which means there is little honey on hand.

The Alabama Farmers' Bulletin has honey listed at from $2.50 to $2.75 per 10-lb. pail postpaid for amber honey (this is very likely mixed flower honey), and Florida tupelo selling at $3.00 per 10-lb. pail. Gallberry honey is practically off the market. We do not produce any clover honey in this part of the state.

Some years ago I sent a few samples of gallberry honey to Washington to see how they would grade on their U. S. grading machines. One sample was a pure gallberry honey; the other, I believe, was a pure gallberry too but was slightly darker. The former I had heated and strained and the latter had just been drawn from a settling tank. Both looked equally clear to me. They wrote telling me the one was fancy white table honey and the other was light amber and would have been fancy had I strained it.—H. G. Miller, Vinegar Bend, Alabama.

80 Years Among the Bees

By E. R. Root

Is Honey a Panacea or Cure for Sugar Diabetes (Diabetes Mellitus)?

The Senior Editor has finally decided to give a little history of that part of his life when he contracted what he thought was a light form of arthritis but was told by his physician that he had a light case of diabetes. He decided to assume the role of guinea pig in the treatment of this disease. He makes no apology for taking this action because he believes his experience will be useful to others.

I have now reached the 87th year of my life and feel I can tell the beekeepers something that may be helpful to them as well as to others who have reached the late years of life.

As a matter of precaution I have been sending urine specimens away for a periodic check for some years. Recently when I received notice that sugar was present I sent their report to my local doctor, also sending him a specimen for his own examination. The result was a confirmation of the first report.

My first reaction was to try out honey because it is currently believed among beekeepers and many others that honey can be substituted for ordinary sugar. When I told a beekeeper friend of my condition, he said that of course I would use honey instead of sugar for, he added, he had sold honey to diabetics. This belief seems to be universal among beekeepers, hence you will see the importance of telling the facts as I find them in my own case.

First, I wish to say that I have used honey all my life in preference to commercial sugar, in my coffee, cakes, and all other foods requiring a sweetening agent. I believed that by this means I could prevent any sugar disease which might occur.

After consulting my doctor I decided to follow his advice. He explained to me that sugar diabetes was no longer regarded as a serious or fatal disease because of the present accepted treatment. Instead of cutting out all and any foods containing starches and sugars, he prescribed a balanced ration—a large proportion of foods of vegetable origin used along with a moderate amount of foods containing starches and sugars. He supplied a list of approved foods now being recommended in the general treatment of moderate cases of diabetes, adding that it was also important to have once a day a prescribed amount of insulin hypodermically applied which would take care of the entire daily food ration. He added that with this diet I could on rare occasions even eat mince pie or cake, but must avoid foods containing an excess of sugar.

Formerly, insulin was given before each meal because they believed that with that treatment one could eat any food. This was a mistake. With the present treatment one need not suffer from the absence of any food, for apparently one application a day is enough. While this treatment requires only one application of insulin a day, where the disease has advanced insulin may have to be used before each meal. On this point, consult your doctor

The outstanding fact is that with the treatment now recommended any diabetic, unless disease is too far advanced, can live a normal life, occasionally attending a banquet with no bad results, and may I add, by not making a "pig" of himself by eating forbidden foods.

One Important Requirement

One important requirement I have not yet mentioned—the patient must submit to his doctor one or more specimens of urine a week to see that he has not jumped over the fence, i.e., does not deviate too much from his general diet of mainly vegetable foods with some sugars and starches. Instead of taking soft drinks he can buy canned orange and grapefruit juice—canned without sugar. The orange juice especially has all the sugar one could desire and is perfectly harmless to the patient. Of course those who do not care for the canned juices may always use the fresh fruit juice.

It is significant though that sweets in the form of fruit juices can be taken with safety by the diabetic because the sugar content is low. We know that honey is an invert sugar. Are fruit juices likewise of the invert type? That we do not as yet know.

Our columns are open for further discussion but the writer believes that we, as editors of Gleanings and authors of ABC and XYZ of Bee Culture, cannot afford to recommend honey indiscriminately to diabetics. It is much safer (as I did) to consult your family physician.

A Reply to Mr. Taylor

By George H. Rea, Williamsport, Pa.

After a long trip, such as I have just completed, the mail on my desk and the bee journals receive prompt attention. It is refreshing to read the kindly, cooperative, and instructive editorial by Mr. E. R. Root, always the staunch friend of beekeepers, "To Pack or Not to Pack, That is the Question", page 690 of November Gleanings in Bee Culture. A friendly letter from a New York honey producer also tells how he packs his bees. He says, "In Gleanings this month a gentleman from Virginia (referring to Mr. M. I. Taylor's criticism of my article, see page 682, November Gleanings) should have tried to winter his bees up here last winter, with the wind blowing through his hives, and he would have gained some knowledge the hard way." The name of this beekeeper is not given because permission to use it has not been asked. This gentleman, like hundreds of others in the colder parts of this country, who annually pack thousands of colonies, has confidence born of many years of experience, that his bees will come out in the spring strong and ready for orchard pollination and the clover honey harvest.

Marked, in contrast, is the attitude of Mr. Taylor in his attack on winter packing as found in November Gleanings. His unreasonable and unwarranted language would not merit a reply were it not that he questions the good sense and successful practice of a large section of the beekeepers of this country, as well as the work of some careful investigators and teachers.

What becomes of the heat produced by the bees may be the responsibility of Mr. Taylor to explain. After all, some very practical beekeeping facts remain. Colonies in hives sealed as nearly air tight as bees can make them, heavily packed on all sides and top and bottom, and the only entrance a very small one at the bottom, do move to new stores in the coldest weather and do not starve, are rarely troubled by dysentery, and usually come out in the spring strong and healthy. And this in areas where the stores are considered to be of low quality, winter temperatures ranging down to sub-zero and where winter flights are not possible over periods of several weeks or even months.

Dr. Miller, sage of Marengo, told us many years ago that if we want to know anything about bees, to ask the bees. This is exactly what the beekeepers do in much of their practice. It is good practice, also, if the other fellow accomplishes results that I cannot understand but want to know about, to make him a friendly call and try to find out about it rather than treat him to a blast of "HOT AIR", or try to smother him with a lot of theories to prove that what he is actually accomplishing isn't so.

A good illustrative story is not out of place. A professor, while addressing a class of ministerial students said, "Young men, if you have only theories to present, be honest about it and present them as theories and your audience will believe you. If you have facts to present stand by them as facts and your congregation will stand by you. But if you have neither theories nor facts to present then pound the desk and yell, yell, YELL."

TEMPORARY TWO-QUEEN COLONIES

By E. S. Miller, Valparaiso, Indiana

I was interested in Prof. Abushady's scheme for requeening with temporary two-queen colonies (July, 1948, Gleanings, page 433). I tried this at an outyard some 35 years ago. So confident was I that it would work that I tried it with about 50 colonies. **Result:** Old queen above, no young queen below in nearly every colony so treated. How many swarms the virgins took with them I am unable to say as I wasn't there to see. My guess is about 50.

[Apparently much depends on conditions that prevail at the time divisions are made, as to the success of this method. Should divisions be made at the beginning of a major honey flow, with swarming prevalent, we would expect some swarming out with virgins when they left the hives to mate. If colonies had passed the swarming season the parent colonies left with cells should, in the majority of cases, have laying queens in due time.—Ed.]

Highlights of St. Louis Meeting

Left: Chas. Hoffman of Janesville, Minn., newly-elected Vice-President, and Roy Grout of Hamilton, Ill., new President of the American Beekeepers' Federation.

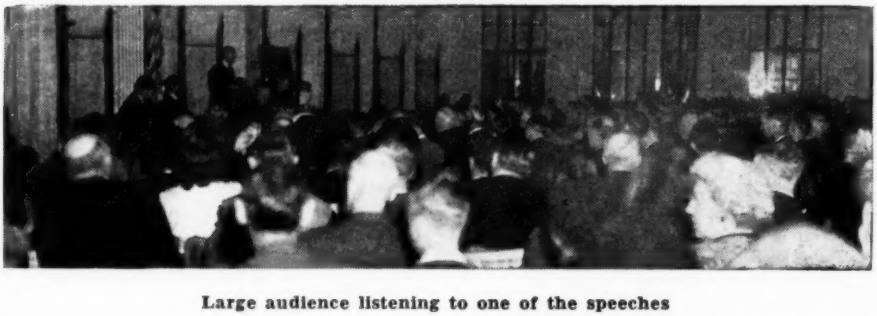
When Woodrow Miller, President of the National Federation, sounded his gavel at the opening session, he was greeted with a large representative cross section of our industry from practically every state in the Union, serious- minded people, anxious to find solutions to the problems that confront us. Problems mentioned by various speakers are:

(1) Honey markets are unsettled. (2) Bee pasture in some parts of the clover regions is not good, due to clover weevil, high price of clover seed, and lack of legumes. (3) More research is needed on honey. (4) Honey is not used as it should be by bakers because of lack of uniformity. (5) Spray poisoning is still prevalent and damaging in some states. (6) More bee behavior studies are needed. (7) Pollination needs to be sold to the Soil Conservation Commission. (8) There is a dire shortage of trained personnel for scientific experimental work on beekeeping. (9) More money is needed for the Federation.

The Brighter Side

(1) Mrs. Harriett M. Grace of the American Honey Institute announced in her talk that the Seal of Acceptance of honey as a food for adults and infants has been granted by the American Medical Association. This is a most heartening piece of news. (2) C. J. Hudson of Atlanta, Ga., who retails a considerable volume of honey, said that people were willing to pay a fair price for good quality honey in clean, attractive containers. Lowering honey prices may not increase sales. (3) A research project has been started on improving the flavor of off-grade honeys to make them acceptable to the trade. (4) Legume acreage, especially Ladino clover, is on the increase.

(Continued in February issue)



Large audience listening to one of the speeches

Buy and Sell Here

CLASSIFIED ADS

Only responsible advertisers and honest advertisements will be admitted to these columns. References required from new advertisers not known to us. Rate:—15c per counted word, each insertion. Each initial, each word in names and addresses, the shortest word such as "a" and the longest word possible for the advertiser to use, as well as any number (regardless of how many figures in it), count as one word. Copy should be in by the 10th of the month preceding.

HONEY FOR SALE

WE BUY AND SELL all varieties of honey. Any quantity. Write us for best prices obtainable. The Hubbard Apiaries, Manufacturers of Bee Supplies, Onsted, Michigan.

CLOVER HONEY, No. 1 white extracted, 16c lb. in 60's. Lose Brothers, 206 E. Jefferson, Louisville, Ky.

NEW CROP of honey shipped daily from producer in Florida. Pure orange blossom, 5 lb., $2.25; Pure Florida comb honey, 5 lb. pail, $2.75. No C.O.D. orders, all shipments prepaid. E. R. Raley, Daytona Beach, Box 1610, Florida.

COMB HONEY No. 1 clover. W .R. MOOMAW, Stone Creek, Ohio.

Amber extracted in 60's, 12c; extra dark capping meltings, 8c per lb. H. G. Quirin, Bellevue, Ohio.

WHITE clover and amber. Lewis Klaty, Carsonville, Mich.

CLOVER extracted honey in sixties. Abram H. Brubaker, Lancaster, Pa., Rt. 1.

Choice CLOVER and LIGHT AMBER honey for sale. Arthur Thayer & Sons, 2122 N. Ames, Saginaw, Michigan.

WHITE CLOVER, new 60s, 12c. Henry Hill, Union City, Indiana.

Ohio delicious extracted white clover honey. Sixty-pound cans, $9.00 per can. Sample, 25c. Melrose Apiaries, Delphos, Ohio.

GOOD FALL FLOWER HONEY. Angus Carruthers, Syracuse, N. Y., Rt. 2.

FOR SALE—Truck load of clover honey. Frank Kruse, Red Lake Falls, Minnesota.

Choice clover honey, 15 cents; amber honey, 10 cents. All in new cans. E. G. Kyte, Fairview, Pa.

HARRIS—Has limited amounts of light amber, and amber extracted in 60's. J. N. Harris & Son, St. Louis, Mich.

CLOVER HONEY in new 60's, white to water white, 16c. E. R. Foster, 1302 Middle, Elyria, Ohio.

FOR SALE—White clover and light amber extracted honey in 5 lb. glass jars and 60-lb. square cans. L. S. Griggs, 711 Avon St., Flint 3, Mich.

HONEY AND WAX WANTED

BEEKEEPERS TAKE NOTICE — We can not guarantee honey buyers' financial responsibility, and advise all beekeepers to sell for cash only or on C.O.D terms except where the buyer has thoroughly established his credit with the seller.

WILL PAY over market price for clean yellow beeswax. Also white clover honey. Roscoe F. Wixson, Dundee, N. Y.

WANTED — White and amber honey, any amount. D. F. Treap, 316 Keenan Ave., Cuyahoga Falls, Ohio.

HONEY—Carloads or less. Mail sample, price, quantity. Konces, North Abington, Mass.

WANTED—Honey and wax, any quantity. Send samples and prices. Alexander Company, 819 Reynolds Road, Toledo 7, Ohio.

CASH FOR YOUR HONEY — Extracted or comb. Regular trade, send sample. 60-lb. cans furnished, if desired. W. R. Moomaw, Stone Creek, Ohio.

WANTED—EXTRACTED HONEY— Clover or light amber. C. H. Denny, 483 Moody St., Akron, Ohio.

CASH FOR BEESWAX. Write us as to quantity and we will quote price. Muench-Kreuzer Candle Co., Inc., Syracuse, N. Y.

HONEY WANTED—All grades and varieties. Highest cash prices paid. Mail samples. State quantity. HAMILTON & COMPANY, 1360 Produce St., Los Angeles, Cal.

HONEY AND WAX WANTED. Mail Sample. Advise quantity. BRYANT & SAWYER, 2425 Hunter St., Los Angeles 21, California.

WANTED clover honey of good quality. Please submit samples and best price delivered to our plant, Schultz Honey Farms, Ripon, Wisconsin.

FOR SALE

PAPER SHIPPING CARTONS, sample mailing cases, pumps. See display advertisement. Roscoe F. Wixson, Dundee, N. Y.

QUEENBEE PAINTING OUTFIT, $1.00; colony records, 10-15c postpaid. Southwick Apiaries, Waban, Mass.

WE CARRY a full line of ROOT QUALITY Bee Supplies. Prairie View Honey Co., 12303 12th St., Detroit 6, Mich.

WE MANUFACTURE BEEKEEPERS' SUPPLES. Write for Price List. Marshfield Mfg. Co., Marshfield, Wisconsin.

FOR SALE — Write for large free Bee Supply Catalog. We manufacture bee hives, foundation, tanks, and extractors. Listing many items not found in other catalogs. Walter T. Kelley Co., Paducah, Ky.

WRITE FOR CATALOG — Quality Bee Supplies at factory prices. Prompt shipment. Satisfaction guaranteed. The Hubbard Apiaries, Manufacturers of Beekeepers' Supplies, Onsted, Mich.

FOR SALE: New and used bee supplies. Reasonable. Felix Hartman, San Antonio, Florida.

XUM

HONEY LABELS

Improved designs, embodying color, balance, simplicity, and distinction. Please send for free samples & prices.

C. W. AEPPLER COMPANY

Oconomowoc, Wisconsin

Michigan Headquarters

for

Root QUALITY

Bee Supplies

Comb and Cutcomb Packages

Glass and Tin Honey Containers in all standard sizes

Prompt Service

Michigan Bee and Farm Supply

Box 7 Lansing 1, Mich.

Successor to M. J. Beck Co.

PATENTS Keep up with the latest U. S. Patents in the beekeeping field by reading our illustrated monthly feature "Patents on Parade". It's exclusive! Send $2.00 for one year

SOUTHERN BEEKEEPER

Hapeville, Georgia

HONEY WANTED

Carloads and less than carloads. Mail sample and best prices in all grades.

C. W. AEPPLER COMPANY

Oconomowoc, Wisconsin

200 4-frame Dadant depth nuclei boxes, good condition, 40c. Can furnish frames of brood in spring. Rev. O. A. Salge, Elsa, Texas.

YOUR WAX WORKED into quality brood foundation, 23c pound; 100 pounds, $19.00. Fred Peterson, Alden, Iowa.

SIMPLEX TRAP clips queens without handling, $1.00 postpaid. Instant Frame Spacers — eight-nine, specify size, $1.50 postpaid. Free circulars. George Leys, 36 Jackson Street, New Rochelle, N. Y.

BEEKEEPERS! ATTENTION!! You will never get stung investing in VOHO Entrance Closures. Completely closing a hive in 3 seconds, yet insuring ample ventilation, should appeal to every progressive honey producer. Write, wire, or come a-riding to VOHO PRODUCTS, 2916 Orange Street, Norfolk 2, Virginia. For cash—Uppers, 80c. Lowers a buck thirty, plus postage. Cheaper too in quantity.

BEES AND QUEENS FOR SALE

We use all possible care in accepting advertisements, but we cannot be held responsible in case disease appears among bees sold or if dissatisfaction occurs. We suggest that prospective buyers ask for certificate of inspection as a matter of precaution.

BREWER'S LINE - BRED CAUCASIAN QUEENS—Now booking orders for April 1st. Prices: 1-99, $1.15; 100-up, $1.00. Member A.B.B.A. Brewer Brothers Apiaries, 3616 Caucasian Circle, Tampa 6, Florida.

Three Banded Italian bees and queens for 1949. Full weight packages with good young queens. Alamance Bee Company, Graham, N. Carolina.

GOOD ITALIAN QUEENS, 75c each. D. W. HOWELL, Shellman, Georgia.

CAUCASIANS — Booking orders for 1949. 2 lb. pkg., $4.50; 3 lb. pkg., $5.50; queens, $1.00 each. Lewis & Tillery Bee Co., Rt. 1, Box 280, Greenville, Ala.

GOLDEN ITALIAN Package bees and select queens. Finest quality. Write for prices. Carolina Bee Farm, Graham, N. C.

ITALIAN Package Bees and Queens—2 lb. pkg., $3.70; 3 lb. pkg., $4.50.Queens, $1.10 each by Air Mail. Walter D. Leverette, Fort Pierce, Box 364, Florida.

BOOKING package bees with Caucasian or Italian queens for spring delivery. Miller & Evans, Three Rivers, Texas.

YES, ALL COMPARISONS prove that Green's profit producing queens are the best to be had. They will please you from the brood nest to the harvesting of a great crop of honey. Backed by 22 years of breeding better queens. Price, 90c each. D. P. Green, Deland, Fla., R. 2.

The Norma Roy Apiaries—Italian bees, 2 pounds with queen, $3.75; 3 pounds with queen, $4.50; 4 pounds with queen, $5.25. Queenless packages, deduct 75c. Live delivery and health certificate. Norma E. Roy & Son, Hessmer, Louisiana.

SURPLUS 400 colonies in Florida full of bees and honey all or in part, suitable for package bees or honey production. Inspection certificate furnished. Information on request. Box 4, Gleanings, Medina, O.

COMPLETE single hives. 700 supers. Two story colonies packed. Priced reasonable. Inspected. Leo Bear, Grand Forks, North Dakota.

FOR SALE—75 colonies, with equipment. Inspected. Write for details. H. E. Cheffer, 12340 So. Wentworth, Chicago, Ill.

FOR SALE — 600 colonies heavy with honey, $10.00 each. Complete equipment for operation of 800 colonies. Inspected. Northern Michigan Apiaries, Petoskey, Michigan.

HELP WANTED

WANTED — Good experienced queen breeder. Can make good offer to the right man. Write Gleanings, Box 1148, Medina, Ohio.

WANTED!—Capable bee man for extracted honey production. Country man preferred. Season, April to November. Board, room furnished. Give full particulars, qualifications, wages expected. Lavern Depew, Auburn, N. Y.

WANTED—Single man to help operate 900 colonies of bees. Harold E. Gartner, Titonka, Iowa.

Two experienced migratory beekeepers, capable of handling trucks in moving, extracting, etc. Baughn Stone, P.O. Box 6060, Idabel, Okla.

TURKEYS

RAISE TURKEYS THE NEW WAY. Write for free information explaining how to make up to $3,000.00 in your own back yard. Address: NATIONAL TURKEY INSTITUTE, Dept. 253, Columbus, Kansas.

SUPPLIES

ATTENTION BEEKEEPERS IN MINNESOTA and adjacent states. We offer a real service on Lewis-Dadant Supplies, honey containers, and labels at a price saving to you. Top market price paid for extracted honey and beeswax. HONEY SALES COMPANY, 1806-08 NO. WASHINGTON AVE., MINNEAPOLIS, MINNESOTA.

SEEDS

HARDY ALFALFA, U. S. grown, $24.00 per bu., hardy Grimm, $27.70; Red Clover, $24.00; Alsike Clover, $19.95; Scarified Sweet Clover, $10.90; Timothy and Clover Mixed, $9.95; New Mountain Brome, $4.25: Hybrid Seed Corn, tested, $4.75. Prices low on Red Clover, Timothy, Lespedeza, Alsike, etc. New Certified Clinton 59, Mindo and Benton Oats. Our seeds recleaned, tested. Guaranteed satisfactory and sold subject your 60-day test. Write for free samples and 1949 Catalog. Hurry, scarcities exist. American Field Seed Co., Dept. 382, Chicago 9, Ill.

Try SAINFOIN, extensively grown European forage crop and major source of honey; seed per pound, $1.00. BIRDSFOOT TREFOIL, long-lived pasture legume; hardy Northeastern grown Certified Broadleaf, pound, $2.75. LADINO CLOVER, Certified Blue Tag, per pound, $3.00. Postpaid. Inquire quantity prices. Circular free. Pellett Gardens, Atlantic, Iowa.

RAISE YOUR OWN TREES and shrubs from seed for shade, windbreak, snow fence, etc. Write for free planting guide and price list. WOODLOT SEED CO., Norway 2, Michigan.

SEEDS OF HONEY PLANTS. One packet each of twelve good honey plants, $2.00; 35 for $5.00. Postpaid. Send for illustrated circular. Pellett Gardens, Atlantic, Iowa.

Carniolan Queens

$1.25 each, prepaid

Ephardt Honey Farms

Batchelor, Louisiana

CAUCASIANS
CARNIOLANS

Relocated in more favorable locations for queen rearing and mating in Glades Co., South Florida. Breeders from our N. J. yards. Queens ready early March. Also some packages. Ask for prices. Queens and packages from N. J. yards in May.

Albert G. Hann, Palmdale, Florida

Quality 3-Banded Italian

Package Bees and Queens

for 1949

New and improved package delivers bees in better condition. Prices are right. A member of The American Bee Breeders' Association

Cottage Hill Apiaries

Rt. 2 Box 64 Mobile, Alabama

Three Banded Italian

Package Bees and Queens

1949 Satisfaction Guaranteed

Bessemer Apiaries

4300 A Raliegh Rd.

Greensboro, N. C.

Italian Bees and Queens

We are ready to book your order of package bees and queens for spring delivery. Our shipping date opens April 1st.

Oscar Arnouville

Box 35, Hamburg, Louisiana

One Quarter of 100 Years with Caucasian Bees

Book your Orders Now for Queens and Package Bees

Prices from April 10th to June 1st:

	Queens	2-lb.	3-lb.
1-24	$1.40	$4.50	$5.60
25-99	1.30	4.25	5.30
100-up	1.20	4.00	5.00

Health certificate with each shipment and live delivery guaranteed. Folder free.

Bolling Bee Co.

Bolling, Ala.

To Our
Friends and Customers
We Wish
To Extend
Holiday Greetings
and
Our Sincere Appreciation
for
Their Patronage

August Lotz Co.
Manufacturers and Dealers
in
Bee Supplies
Boyd Wisconsin

SERVICE
from
SYRACUSE

ROOT "QUALITY" BEEKEEPERS' SUPPLIES:
Materials are still scarce. Order your bee supplies now, or send us a list of your requirements. We will advise you and quote prices when available.

HONEY CONTAINERS:
Complete stocks at all times —standard honey jars, tin cans, and pails.

BEESWAX
With new equipment for rendering old combs and cappings, we get all the wax there is—at reasonable rates. Highest market prices paid for wax — Cash or trade. Shipping tags sent on request.

A. I. Root Co. of Syracuse
1112-14 Erie Blvd., East
Syracuse 3, N. Y.
Serves You Best

NECTAR - BEARING PLANTS, TREES, AND SHRUBS. Free illustrated Folder describing 70 varieties, designating those suited for your section. Prompt moss-packed shipments from our cellars. For Basswoods, Honeysuckle, and Vitex shrubs see ad, page 51. Nicollet County Nursery, St. Peter, Minn.

ALFALFA, highest quality, $26.25 bushel; Hardy Grimm Alfalfa, $27.60; Red Clover, special Lot Leader, $23.95; Alsike Clover, $20.85; Sweet Clover, $10.80; Alsike and Timothy Mixed, $10.35; Mountain Brome, $4.20; Hybrid Corn, $4.75. All per bushel. Triple recleaned. Complete stocks all other seeds lowest prices. Guaranteed satisfactory. FREE Samples and Catalog. BERRY SEED CO., Box 482, CLARINDA, IOWA.

VITEX SEED—You can grow the finest honey producing trees in your backyard, blooms the second season and how the bees go for it. Your trade will soon demand GOLDEN VITEX HONEY. Two oz. seed, $1.00; per pound, $5.00. Postpaid. T. F. Brown, Box 110, Nevada, Mo.

PURPLE LOOSESTRIFE, good honey plant, grows wild on wet land. Tiny seed, ounce, $1.00; ¼ pound, $3.00, pospaid. Pellett Gardens, Atlantic, Iowa.

MISCELLANEOUS

STOP Plan ahead for greater income! Package cutcomb without leakage. Details, $1.00. Joseph Gabrielsen, Graettinger, Ia.

"CONCRETE BLOCK HOMES". 32-page booklet on how to build, $1.00. Other Home Building booklets, $1.00. H. C. Lightfoot, Civil Engineer, Richboro 19, Penna.

FOR SALE OR LEASE—Large commercial apiary, orchard pollenizing, and honey production. C. H. Schader, Sunnyside, Washington.

BEES WANTED

WANTED: 15 to 20 two-story colonies of Italian bees in standard full-depth supers. Hives must be in state of Penna. Must be inspected. William Melcher, Malvern, R. D. 1, Penna.

POSITION WANTED

By February 1st, experienced in honey production, package bees, queen yard and shop work. Will furnish references. E. V. Danker, Vidalia, Ga.

BOOKS

Invaluable booklet. COMPOST — HOW TO MAKE IT by J. I. Rodale (author of PAY DIRT) tells advantages of organic fertilizers, analyzes materials, efficient composting. Only 40c (including postage and handling). American and English books. Lists. HORTICULTURAL BOOK SERVICE, 200 S. Detroit Avenue, Concord, California.

MAGAZINES

DAIRY GOAT JOURNAL—Introductory six months, $1.—Columbia 14, Mo.

DO YOU FIND it difficult to secure information about sheep and sheep ranching methods? The SHEEP AND GOAT RAISER reaches more sheepmen with more information on range sheep than any other magazine published. Subscription—$1.50. Hotel Cactus, San Angelo, Texas.

THE INDIAN BEE JOURNAL—The only bee journal in India. Sample copy against 25c (1s 6d) postage stamp. Yearly 7s, 6d ($1.50) International Money Order. Apply Bhupen Apiaries (Himalayas), Ramgarrh, Dist Naini Tal, U.P. India.

THE BEE WORLD—The leading journal of Great Britain and the only international bee review in existence. Specializes in the world's news in both science and practice of apiculture. Specimen copy post free. 12 cents stamps. Membership in the Club including subscription to the paper, 10/6. The Apis Club, L. Illingsworth, The Way's End Foxton, Royston, Herts, England.

WESTERN CANADA BEEKEEPER—Official organ of the Manitoba Beekeepers' Association. One year, $1.50; two years, $2.25; three years, $3.00. In combination with Gleanings in Bee Culture, $2.75. 211 Affleck Bldg., Winnipeg, Canada.

STOLLER'S Fine Quality Clover Honey, 1948 crop, excellent for bottling. Stoller Honey Farms, Latty, Ohio.

PACKAGE BEES AND QUEENS

Bright Three Banded Italians

Price:	Queen	2 lb.	3 lb.
1 to 24	$1.40	$4.50	$5.60
25 to 99	1.30	4.25	5.30
100 up	1.20	4.00	5.00

We guarantee safe arrival. For larger packages, write for circular.

TAYLOR APIARIES
Box 249 Luverne, Ala.

HONEY MELTING OVENS For Sale

2 Cabinet-type ovens, each with 48 five-gal. can capacity. Asbestos-covered, steel construction. Complete with steam coils and glass-lined pans.

MAX AMS, INC.
376 Greenwich St.
New York 13, N. Y.
Phone DIgby 9-4200

Italian Queens and Package Bees and Queens

2 lbs. with queen, $3.50
3 lbs. with queen, 4.50
4 lbs. with queen, 5.50
Guaranteed full weight. 20% deposit, balance before shipping date.
Napoleon Guillory Apiary
Marksville, La.

Puett's Packages and Queens

Prices:	1-9	10-49	50-99	100-up
2 lb. pkg. with queen	$4.60	$4.35	$4.15	$4.00
3 lb. pkg. with queen	5.60	5.35	5.15	5.00
4 lb. pkg. with queen	6.60	6.35	6.15	6.00

Extra queens, $1.25, untested; $2.00 tested. Queenless packages, deduct $1.25. Loose-queen package (late shipment only) add $1.00.

$1.00 deposit holds shipping date, balance payable before shipment. Refunded if cancelled ten days before shipping date.

Puett now manufacturing division board Feeder. Made of masonite, glued and nailed to gum frame.
Price, 75c

The Puett Co. Dept. B. Hahira, Ga.

Italian Package Bees and Queens

All Shipping Dates Open

	1-24	25-49	100-up
2-lb. with Queens	$4.50	$4.25	$4.00
3-lb. with Queens	5.60	5.30	5.00
Queens	1.40	1.30	1.20

For price of queenless packages, deduct the price of the queens.

Southern Apiaries and Supplies Company

Chatom, Alabama

Gaspard's

Quality Italian Queens and Package Bees

We are booking orders for spring 1949 delivery. Only 20% with order, balance 10 days before shipping date. We guarantee live delivery and health certificate accompanies each shipment. Prices as follows:

	1-49	50-up
2 lb. pkg. w. queen	$3.75	$3.50
3 lb. pkg. w. queen	4.75	4.00
4 lb. pkg. w. queen	5.75	5.00
5 lb. pkg. w. queen	6.75	6.00
Queens	$1.25	

Gaspard Bee Company

Hessmer, La.

Now booking orders for 1949 Leather Colored Italian Queens and Package Bees

Write for Prices

LYNN WILLIAMS

Rt. 3 Oroville, Calif.

THREE-BANDED ITALIANS

Package Bees and Queens

2-lb. pkg. with queen, $3.50; 3-lb. pkg. with queen, $4.50; 4-lb. pkg. with queen, $5.50. Only 20% down to book your order, balance 15 days before shipping date. Health certificate, and live delivery guaranteed.

Lake Pearl Apiaries

Isaac Roy, Prop.

HESSMER, LOUISIANA

Dixieland's

Leather-Colored Italians Bees and Queens

Write for prices and booking dates

Dixieland Apiaries

Greenville, Alabama

Italian Bees and Queens for 1949

Write for prices

Two and 3 pound packages; 2, 3, and 4 frame nuclei, one or a truck load. Also queenless packages.

Walker Apiaries

Box 894 Pharr, Texas

High Quality ITALIAN BEES AND QUEENS

If you want High Quality Queens and Package Bees for 1949 at a reasonable price, Send your inquiry and requirements to:

Carlus T. Harper

New Brockton, Ala.

Queens of the Golden West

Buy Western-bred queens and package bees for best results. We ar now booking orders for spring 1949.

CLIFTON APIARIES

Oroville Box 684 California

Italian Bees and Queens for Spring 1949

2-lb. package with queen, $3.75
3-lb. package with queen, 4.75
4-lb. package with queen, 5.75

Order early and play safe. 20% deposit, balance 10 days before shipping date. Safe delivery.

THE STAR BEE FARM

Hessmer, La.

OLDEST BEE JOURNAL IN THE ENGLISH LANGUAGE

Keep up on markets, practices, scientific data, regulations, and plant possibilities.

1 year, $2.00, U. S. and Canada
Foreign postage, 25c a year extra

AMERICAN BEE JOURNAL

Hamilton, Illinois

GLEANINGS IN BEE CULTURE

Basswood Trees

AMERICAN BASSWOOD (Tilia americana) nsw. 60-70'. Basswood blended honey is known to have the mildest aroma flavor of them all. 12-18 in., per 50, $8.75; 18-24 in., per 50, $10.00; 2-3 ft., per 50, $15.00; 4-5 ft., each, $1.25; 5-6 ft., each $1.75; 6-8 ft., each, $2.25; 8-10 ft., each, $3.00, FOB St. Peter, Minn. By mail, five 12-18 in. for $1.20; four 18-24 in. for $1.20; two 2-3 ft. for $1.20, postpaid.

CORDATA BASSWOOD OR LINDEN (Tilia cordata) nsw. 60' 30-36 in., $2.00 each, postpaid.

PYRAMIDAL BASSWOOD (Tilia pyramidalis) nsw. 70'. Only in sizes 5-6 ft., $2.75 each; 6-8 ft., $3.75 each, FOB St. Peter.

ANISE HYSSOP PLANTS. The longest and most free to bloom Blueish Bee plant we have. June till frost. 2 yr. old plants, 5 for $1.20; 20 for $4.20, postpaid.

Honeysuckle Shrubs

PINK TARTARIAN HONEYSUCKLE (Lonicera tartarica rubra) nws. The best windbreak for your bees. A 12-foot high row, full of April-May bloom when your bees need it for their build-up, is worth your effort. 12'. 12-18 in., per 50, $9.50, by express; 5 for $1.20, postpaid; 18-24 in., per 50, $12.00, by express; 4 for $1.20, postpaid, 2-3 ft., per 50, $16.50 by express; 3-4 ft., per 50, $24.50, by express; 2 for $1.20, postpaid.

WHITE TARTARIAN HONEYSUCKLE (Lonicera tart. alba). Same price as pink honeysuckle, only in two smaller sizes.

MARROWII HONEYSUCKLE (Lonicera marowii) nws. 10'. Same price as pink honeysuckle, all sizes.

ZABELLI RED HONEYSUCKLE (Lonicera tart. zabelli) nws. 12'. New beautiful Red Shrub. Like the above same species, after this most beautiful red bloom it has red berries for our bee friends the birds. 12-18 in., per 50, $10.50, by express; 4 for $1.20, postpaid; 18-24 in., per 50, $14.50, by express; 3 for $1.20, postpaid; 2-3 ft., per 50, $18.50, by express; 3-4 ft., per 50, $27.50, by express; 2 for $1.35, postpaid.

CHINESE VITEX sw. 8-10 in., 3 for $1.20, postpaid; 12-18 in., 2 for $1.20, postpaid; 18-24 in., 2 for $1.30, postpaid.

Order from this ad. Supply limited. Don't delay. Get our complete list of southern and western varieties. Prompt moss-packed shipments from our cellars when you are ready to plant.

NICOLLET COUNTY NURSERY
St. Peter, Minnesota

Three Banded
Italian Bees & Queens

2 lbs. with queen	$3.50
3 lbs. with queen	4.50
4 lbs with queen	5.50

Only 20% down to book your order, balance 15 days before shipping date. Health certificate and live delivery guaranteed with each shipment.
Address: CLOVER BEE FARMS
Hessmer, La.

White Pine Bee Farms, Rockton, Pa. Northern breeders of Italian queens from hardy honey storing stock. Now booking orders for 1949 season which opens May 20.

PLANT'S

Productive Vigorous ITALIANS

Gentle and Easy to Handle

In producing honey in the North we learned what should go into good packages and queens before coming South to raise them.

Now as for years our first consideration is to give the quality and service we would like to receive if we were still on the receiving end.

	1-24	25-99	100-up
2-lb. pkg. with queen	$4.50	$4.25	$4.00
3-lb. pkg. with queen	5.60	5.30	5.00
4-lb. pkg. with queen	6.70	6.35	6.00
5-lb. pkg. with queen	7.80	7.40	7.00
Extra queens	1.40	1.30	1.20

For queenless packages, deduct price of queen

Never any disease in our queen or package yards. Health certificate with each shipment. Safe arrival, full weight. Satisfaction guaranteed.

W. E. Plant

Rt. 2 HATTIESBURG, MISS.

Three Banded

Italian Bees

2 pound package, $4.00

3 pound package, 5.00

Queens 1.00

Our aim:
prompt service and
superior quality
packages.

Haselmaier Apiaries

Mt. Vernon, Ala, U. S. A.

XUM

Bees wildly working on dry pollen substitute

Pollen Substitute

Right now is the time to order your pollen substitutes. Bees will start using this now in the southern states and will start using it in the northern states by late February.

POLLEN SUBSTITUTE IS SO EASY TO FEED. Simply mix the two flours and place in a tub, hive cover, or any shallow container near the hives any day that the bees are flying.

By feeding pollen substitute your bees will build up faster and be in all around better shape. Figure 5 pounds of substitute per colony. The regular mixture used is one part of yeast to 5 parts of soy flour.

5 lb. bag	Yeast, 7 lbs.,	.....	$1.50
25 lb. bag	Yeast, 27 lbs.,	.....	5.00
100 lb. bag	Yeast, 103 lbs.,	.....	15.00
25 lb. bag	Soy Flour, 27 lbs.,		2.50
100 lb. bag	Soy Flour, 103 lbs.,		6.00

Al prices F.O.B. Paducah

Let us quote you on your bee equipment needs.
We have large stocks of all items ready to go.

Walter T. Kelley Co., Box 210, Paducah, Ky.

Bees and Queens

ITALIANS CAUASIANS
RESISTANT-STOCK
Daughters of Queens bred for resistance.

We breed all three races in separate yards.
Booking orders now for 1949 shipping.

Over 30 years a shipper
Send for Free Circulars

Blue Bonnet Apiaries

Weslaco, Texas

"Not a Weed Left"

Save time—save labor.

Tend your garden this modern way. Quick; easy; far better. Rotating blades and underground knife destroy weed growth. "BEST WEED KILLER EVER USED." In same operation they break up the clods and crust, aerate soil, work the surface into a level moisture - retaining mulch. Patented filler drum and other big advantages.

A woman or boy can use it — do more and better work than 10 men with hoes. Write for literature, sizes and prices delivered.

BARKER MFG. CO., Box 22 David City, Nebr.

Canada's National Monthly Magazine for Beekeepers

Canadian Bee Journal

54 Bloor St., W., Toronto 5, Ont.
U. S. Subscription Price, only $1.25 per year.

We buy Amber and White Clover extracted Honey. Send sample, state quantity and best price, freight paid to Cincinnati.

THE FRED. W. MUTH CO.

229 WALNUT STREET — CINCINNATI 2, OHIO

OUR REFERENCE—YOUR BANK

MIDWINTER INSPECTION

(Continued from page 34)

at the very bottom of the food combs that are placed above.

Case II. The medium colony with cluster well established should be given careful attention. It will not readily occupy a food chamber placed above. It should also be reduced so it will not have too much space to keep warm when the food is added. The method of adding honey and reducing space will be somewhat different, as the old cluster must be reformed by the beekeeper to insure occupancy of the food combs. Among their old combs will be found a few that are quite full of honey and have clustering space. These should be alternated with the most similar food combs of greater weight, and other combs be placed at the sides until the desired weight is made up. Enough should be given to last until spring honey plants are advanced. Light combs taken from the medium-strength colony must be shaken free of bees and queen and placed at the edges of supers supplying feed. Any honey they may have will be carried to the center of the cluster, leaving the combs clear.

Case III. A weak colony with plenty of honey may be given combs of pollen if it is of profitable strength to build up. The pollen will insure against dwindling in spring. Little honey should be removed unless both stories are quite congested. If the colony is too weak, yet the queen is worth saving, it may be given the queenless half of an exceptionally strong cluster or queenless bees may be united.

Cases IV and V should be united. The queenless colony suffering from dysentery will furnish enough bees to enable the handful of bees and queen to pull through. Other bees may be given if some colonies are exceptionally strong. A small hive with small entrance and the heaviest stores handy and near the entrance will help the nucleus. It will not build up by itself, however.

At this trip and other trips great colonies having an extra super above their needs, or other colonies overly well supplied, may be noted and used to advantage in late spring and early summer. Few beekeepers think to leave enough honey to last until spring has really begun for the bees.

Quality Italian Queens
Package Bees

Order early for preferred shipping dates

George Lott Apiaries
Route No. 2 Baton Rouge, La.

OF COURSE!
We are members of:
Alabama Beekeepers' Association
American Bee Breeders' Assn.
and support:
American Honey Institute
See our advertisement on page 50 of this magazine.
Southern Apiaries & Supplies Co.
Chatom, Alabama

PACKAGE BEES — ITALIANS	with queen	without queen
2 lbs.	$5.00	$4.00
3 lbs.	6.35	5.50
4 lbs.	7.00	6.50

Queens, untested, $1.35; clipped 25c extra. Queens, tested, after May 20, $2.00; clipped, 25c extra.
THE M. L. TINDAL APIARIES
Butter Co. Star Route East
Greenville, Ala.

Australasian Beekeeping News
The Leading Bee Journal of the Southern Hemisphere is the
"AUSTRALASIAN BEEKEEPER"
Subscription 8 shillings per year. Start any time. Inquire for International Money Order for 8 shillings (Australian) at your Post Office.
Write now to the Editor
P. O. Box 20, West Maitland
New South Wales, Australia

A TALK TO BEEKEEPERS

(Continued from page 29)

working with their bees. The old masters took time to observe bee behavior. Some well-known producers of section comb honey were acquainted with the characteristics of each queen in each hive. The comb honey era which occurred just prior to 1906 produced some of the best beekeepers our industry has had. Some of those beekeepers did not have outapiaries. They had their bees near at hand where they could watch every hive and secure the maximum crops of honey.

The New Jersey Beekeepers' Association meets in Trenton, N. J., on January 27. An interesting program has been planned.

Garon's Package Bees and Queens

Better Quality Italians and Daughters of Tested A.F.B. Resistant Stock. The Quality that brings in the Honey. The Service that brings your bees to you when desired.

Prices:

	1 to 9	10 to 24	25 to 99	100-up
2 lb. pkg. with queen	$4.20	$4.10	$4.00	$3.90
3 lb. pkg. with queen	5.30	5.20	5.05	4.90
4 lb. pkg. with queen	6.40	6.30	6.10	5.95
Italian Queens	1.25	1.25	1.20	1.10
D. R. Queens	1.65	1.65	1.55	1.40

For packages with D. R. Queens deduct the price of the Italian queen from the package and add the cost of the D. R. Queen.
We have important and interesting information regarding our D. R. Stock that we would like to pass on to you. Circular sent on request.

Garon Bee Company Donaldsonville, La.

Rich's Leather Italian, Caucasian, and Disease Resistant Bees

Live Delivery Guaranteed on Every Shipment

Prices on Leather Italians and Caucasians:

	Queens	2 lbs.	3 lbs.	4 lbs.
1-24	$1.30	$4.25	$5.30	$6.35
25-99	1.20	4.00	5.00	6.00
100-up	1.10	3.75	4.70	5.65

Please include 10% deposit with order
Prices on D. R. stock will be published later

The Rich Honey Farms, Jeanerette, La.

KNIGHT'S
Three Banded Leather Colored
Italian Bees and Queens

	Queens	2 lb. pkg.	3 lb. pkg.	4 lb. pkg.	5 lb. pkg.
1-24	$1.40	$4.50	$5.60	$6.70	$7.80
25-99	1.30	4.25	5.30	6.35	7.40
100 and up	1.20	4.00	5.00	6.00	7.00

The above prices include the queen with each package.
For queenless package deduct the price of the queen.
Prompt service, full weight packages, young laying queens, safe arrival and your satisfaction guaranteed.
No charge for clipping

John T. Knight Hayneville, Ala.

BEES & QUEENS for 1949

Book Now and be Sure of Your Shipping Date

2 lb. pkgs. with queen $3.85
3 lb. pkgs. with queen 4.85
Queens, each 1.00

Satisfaction guaranteed and safe arrival. 10% books your order, balance 10 days before shipping date.

BAYOU BEE CO.
Rt. 1, Box 49, Montegut, La.

ITALIANS

Bees and Queens for 1949

2 lb. Package with Queen $3.75
3 lb. Package with Queen 4.75
Queens, each 1.10

A deposit of $1.00 is required to book each package with balance before shipment.

A. M. Peach
Baldwyn, Miss.

DIARY OF A BEEKEEPER

(Continued from page 26)

shall I do? How am I going to get them out of there?

I think perhaps if we took the bottom board off and used a smoker we might be able to get them out.

Sears Roebuck have a smoker advertised. It doesn't say there are any instructions with it though. I wonder what you burn in them.

When that man helped me take those bees out, he started the smoker before I got out there. I guess I'll write a letter along with my order for a smoker and ask for instructions.

July 20 Sears Roebuck is all out of smokers. So I'm not any better off than I was before. Montgomery Ward's don't even have them listed. So I guess I'll just have to wait 'till Sears get some in.

August 31 Some neighbors were here today getting apples. They said there was a swarm of bees under their roof. The shingles are so old they are going to put a new roof on. They looked hopefully at me, but I don't think I'm going to volunteer to climb any two-story houses to get any honey or bees. Perhaps I'll loan them the smoker if I ever get one.

[It is possible that the author, Mrs. Baune, may wish to continue her diary some time in the near future.—Ed.]

EARLY
Bees and Queens for 1949

2 lb. pkg. with queen, $4.00
3 lb. pkg. with queen, 5.00

Italians Only

J. E. Wing & Sons
Knight's Landing, Calif.

Three Banded Italian Bees and Queens

We offer both quality and service at reasonable prices. We are Now booking orders for spring shipments. Reserve your shipping dates early.

Bennett Bee Farms
Hattiesburg, Mississippi

Little & Moore Apiaries

Originally
LITTLE'S APIARIES
The John M. Davis Strain
GUARANTEED TO PLEASE
or money refunded
April 15th to June 1st:
1 to 10, $1.25 each
June 1st to November 1st:
$1.00 each any number
Write for quantity prices

Little & Moore Apiaries
Shelbyville, Tenn.

Whittle's

Leather Colored Italians

Get your Packages and Queens when you want them. Reserve 1949 Shipping Dates Early. Write For Our 1949 Prices On Package Bees and Queens Our Bees and Service Will Please You

G. E. Whittle
Star Route West
Greenville, Alabama

J. F. McVAY
Jackson, Alabama
offers
Good Packages
Good Queens
Reliability

	1-24	25-99	100-up
2 lb. with queen	$4.50	$4.25	$4.00
3 lb. with queen	5.60	5.30	5.00
Queens only	1.40	1.30	1.20

Hall Apiaries
Italian Bees & Queens
Write for 1949 price list and quantity discount. Live delivery guaranteed.
P. O. Box 415 Prichard, Ala.

POLLEN

100% Pure — Not a Mixture

When you buy this you get the real stuff, trapped with pollen traps from our own bees.

Recommended by leading authorities, pollen cakes made with a mixture of pollen, soybean flour, and sugar syrup or honey give excellent results in the rapid building up of package bees and over-wintered colonies.

According to the formula used by the U.S. Bee Culture Laboratory at Madison, Wisconsin, four pounds of dry pollen when properly mixed will make fifty one- pound cakes of pollen supplement. Under normal conditions, three to five cakes are used per colony.

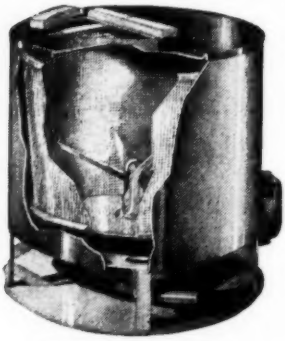
Our pollen is thoroughly dried and fumigated and will keep indefinitely. We strongly recommend that the beekeeper mix his own cakes with real pollen in preference to using some unknown mixture. Directions for mixing included with each shipment.

Orders will be accepted and shipped in the order received. No shipments will be made before March. Order early, as the supply will be limited. Shipment will be by Parcel Post. Include postage with order.

One pound of pure pollen .....$1.30 Ship. Wt. 1½ lbs.
Five pounds of pure pollen ..... 5.75 Ship. Wt. 6 lbs.
Ten pounds of pure pollen .....10.00 Ship. Wt. 11½ lbs.

Babcock Honey Company

Box 126, Five Points Sta., Columbia, S. C.



Pat. Applied For

"A Happy and Prosperous New Year"

We, the makers of the DIAMOND SPINNER, extend this greeting to our host of beekeeper friends throughout the land. We deeply appreciate your past patronage and assure you of our willingness to cooperate with you in every possible way, ever striving to ease your burden and increase your profit.

The Diamond Match Company
Apiary Division
1300 Produce Street, Los Angeles 21, Calif. or Chico, California

Our 1949 Beekeepers' Supplies catalogue ready Feb. 1st, mailed on request

Italian Bees and Queens for 1949

Reserve your shipping date now for the coming season. Write us for quotations. Reliable, dependable service.

B. J. Bordelon Apiaries Moreauville, La.

Better-Bred Queens Three-Banded Italians

Our Better-Bred Stock has proven its merits. We have shipping capacity for 6000 packages. Book your orders early and get our best shipping dates. Our prices are in line with honey prices. Let us quote you.

Calvert Apiaries Calvert, Alabama

Above photo shows a part of our queen yards containing over 10,000 nuclei

Italian Bees and Young Queens

Reserve 1949 dates now. No deposit required for early booking.

	Queens	2 lbs. w. qns.	3 lbs. w. qns.	4 lbs. w. qns.	5 lbs. w. qns.
1-24	$1.40	$4.50	$5.60	$6.70	$7.80
25-49	1.30	4.25	5.30	6.35	7.40
100-up	1.20	4.00	5.00	6.00	7.00

For price of queenless packages, deduct the price of the queen.

Large Queen Orders Solicited

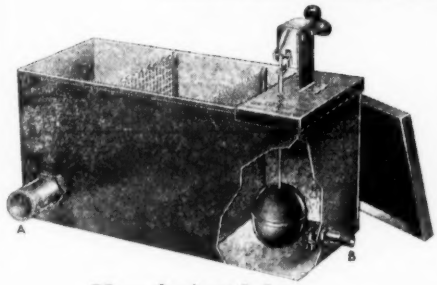
Overbey Apiaries Bunkie, La.

BESSONET'S ITALIANS

Delays and poor quality contribute to low production. Our reputation for QUALITY and SERVICE is well established. No deposit for booking orders. Prices will be released later.

Bessonet Bee Company Donaldsonville, La.

The WOODMAN Automatic Pump Control and Strainer Pump with the WOODMAN Vane Lifter Type Pump, will not churn minute air bubbles into your honey.



Ward Smith, without knowing it, has been writing some very good advertising copy in his Beginners Note Book. See page 17 December Beekeeper Magazine. We have seen numerous Beemen, go to much expense, extra work and inconvenience, in building ramps on flat locations, to get the extracting up, for gravity draining. This is what prompted us to devise this equipment.

Manufactured by

A. G. Woodman Co. Grand Rapids, Michigan

Honey Girl Apiaries

Package BEES and QUEENS When You Want Them

Italian Bees and Queens

	Queens	2 lbs. w. qns.	3 lbs. w. qns.	4 lbs w. qns.	5 lbs. w. qns.
1-24	$1.40	$4.50	$5.60	$6.70	$7.80
25-49	1.30	4.25	5.30	6.35	7.40
100-up	1.20	4.00	5.00	6.00	7.00

For price of queenless packages, deduct the price of the queen

W. E. Case, Proprietor Moreauville, Louisiana

Pure Caucasian Bees and Queens

Book Your Order Now for 1949

Due to the wonderful reception of our Caucasian Branch and many reports of extremely prolific and heavy producing queens and bees, we have increased and improved our Caucasian Branch to better supply the increased demand. With our increased output, we will be able to take care of all orders promptly, but book your orders early to be assured of choice shipping dates.

	Lots 1-10	
2-lb. package with queen	$4.40	We give special discount
3-lb. package with queen	5.50	on large orders.
QUEENS (Each)	1.35	

Health certificate furnished with each shipment and live delivery guaranteed

Pine Bluff Bee Farms Route 3 Pine Bluff, Ark.
(Caucasian Branch — Jesse E. Gooch Apiaries)

Package Bees with Queens

May We Reserve the Date You Desire For Your Shipment?

ITALIANS

Prices:

	Queens	2 lbs. w. qns.	3 lbs. w. qns.	4 lbs w. qns.	5 lbs. w. qns.
1-24	$1.40	$4.50	$5.60	$6.70	$7.80
25-49	1.30	4.25	5.30	6.35	7.40
100-up	1.20	4.00	5.00	6.00	7.00

For price of queenless packages, deduct the price of the queen

We Serve to Serve Again

Sunny South Apiaries Marksville, La.

I. CLARK, Prop.

For 1949 — Use Gooch's Package Bees and Queens

Better prepared to serve you with the best and the best of service

Your choice of Three-Banded and Bright Yellow Italians. Remember, each queen will be the daughter of a queen that has produced 300 lbs. or more of surplus honey in one season. Determine your needs and place your order early to be assured of choice shipping date.

	Lots 1-10	
2-lb. package with queen	$4.40	Write for our special dis-
3-lb. package with queen	5.50	count on large orders.
QUEENS (Each)	1.35	

Full weight packages and live delivery guaranteed

Jesse E. Gooch & Sons Route 3 Pine Bluff, Ark.

STOVER'S BEES

Make 1949 a Successful Year by Starting the Season Right with Stover Bees

(You Must Be Satisfied)

Italians or Caucasians

PRICES

	Queens	Packages with Queens			
		2 lb.	3 lb.	4 lb.	5 lb.
In lots of:					
1-24	$1.40	$4.50	$5.60	$6.70	$7.80
25-99	1.30	4.25	5.30	6.35	7.40
100-up	1.20	4.00	5.00	6.00	7.00

Queens Airmailed and/or Clipped at No Extra Cost

Tested Queens Twice the Price of Untested

For Queenless Package Deduct Price of Queen

Book Your Order Now and get the shipping date that you want. No deposit required, no obligation on your part.

The Stover Apiaries Mayhew, Miss.

Three-Band Italian Package Bees

Full weight. Prompt shipment. Young bees. State health certificate with each shipment. Live arrival guaranteed. Replacement or refund made promptly upon receipt of bad order from your express agent.

1949 PRICES
With Young Laying Queens

Lots of	2-lbs.	3-lbs.	4-lbs.	5-lbs.
1-29	$3.50	$4.40	$5.50	$6.50
30 or more	3.20	4.00	5.00	5.90

Untested Queens 1.00 each
Tested Queens 2.00 each

For Queenless bees, deduct $1.00 each from above prices.

Jackson Apiaries

Funston, Georgia, U. S. A.

Queens SUNKIST Packages
Italian

Early ordering gets the most favored shipping dates. Expect to start shipping March 15. **2 lb. pkg. with queen, $4.00; 3 lb. pkg. with queen, $5.15. Queens, each, $1.15.**

Write for price on quantity lots. DON'T DELAY.
TOP QUALITY — — — SATISFACTION GUARANTEED

Sunkist Bee Company Convent, Louisiana

BE SAFE

By buying full weight packages of Young Three-banded Italian bees, as thrifty as any and a pleasure to work with. Health certificate with each shipment.
We guarantee satisfaction and live delivery, also delivered on the date you want them. Queens are select, reared by us, and shipped caged with bees.

	Prices: 1 to 24	25 to 49	50 to 99	100-up
2 lb. package with queen	$4.00	$3.75	$3.50	$3.25
3 lb. package with queen	5.00	4.75	4.50	4.25
Queens	1.15	1.05	1.00	.90

Homan Bros. R. 2 Shannon, Miss.

WHAT IS A CUSTOMER?

FIRST, let's dispense with the word CUSTOMER, for we prefer to call our customers PATRONS. Patronize means to aid and support.

A BEE BREEDER AND SHIPPER should be, in the first consideration, a man with foresight—even a man with a dream; then, have practical business ability to transact business with many people, to produce efficiently, and to constantly improve all phases of the industry under his control.

A PATRON then can expect not to be treated as a cold statistic—he is a flesh and blood human being with feelings and emotions like our own, and with biases and prejudices.

A PATRON is not someone to argue or match wits with. Nobody ever WON an argument with a patron.

A PATRON is a person who brings us his wants. It is our job to handle them to HIS interest and OURS.

A PATRON is not dependent on us alone—we are dependent on each other.

At the time this was written, December 10th, the 1949 prices have not been published. Write for them after the first of the year.

The Daniels Apiaries Picayune, Miss.

Package Bees for 1949

In spite of rising costs in all our supplies and other items, we will hold prices to the 1948 level.

2 lbs. with young queen, $4.00
3 lbs. with young queen, 5.00

If interested in one-frame NUCLEI write us. These are two or three pound packages with one frame of brood and introduced queen added.

Quality and service will not be spared in our dealings with you.

"They Produce"

Rossman & Long

P. O. Box 133 Moultrie, Ga.

Italian Package Bees and Queens for 1949

Quantity	1-23	24-98	99-up
2 lb. pkg. with queen	$3.85	$3.70	$3.50
3 lb. pkg. with queen	4.85	4.70	4.50
Queens only	1.25	1.20	1.15

For queenless packages deduct the price of queen. Packages are shipped Express collect. Queens postpaid.

Terms: $1.00 per package when order is booked, the remainder at least 10 days prior to shipping. Cancellations are in order at any time prior to actual shipping with full refunds made promptly.

Girardeau Apiaries

(Successors to M. Pettit)

Tifton, Ga.

TANQUARY'S

Italian Bees and Queens

Orders Never Too Large Nor Too Small

Conditions are getting better right along in the honey market, and let's don't neglect our equipment and not have it filled with bees and good young queens this spring. Time is at hand to place that order for bees and queens. We have never been in better shape, so let us hear from you.

Order Early

Quantity	Queens	2-lb. pkg.	3-lb. pkg.	4-lb. pkg.	5-lb pkg.
1 to 24	$1.35	$4.50	$5.60	$6.70	$7.75
25 to 99	1.25	4.25	5.30	6.30	7.25
100-up	1.15	4.00	5.00	6.00	7.00
Tested	2.00 ea.				

Health Certificate With Each Shipment
Queens Postpaid — Packages F. O. B.
Queenless Packages Deduct Price of Queen

Tanquary Honey Farms, Inc., Lena, S. C.

Western Union: Lena, S. C. **Telephone: Estill, S. C. 109**

Italian Package Bees and Queens for 1949

5000 Packages for Spring Delivery at the Following Prices:

	1-24	25-up
2 lb. pkg. with young laying queen	$3.75	$3.50
3 lb. pkg. with young laying queen	4.75	4.50

Extra Queens (any number) $1.00 each

SPECIAL — 1000 4-frame nuclei for late April Delivery

$1.00 per package deposit books your order, balance ten days before shipment is made. We guarantee live delivery, a health certificate with each shipment, and service you can depend on.

Quality Does Not Cost — It Pays

The Wilbanks Apiaries **Claxton, Georgia**

A Contest For
EVERYBODY ANYBODY EVERYWHERE

Who sends an order for 10 DR queens. Just complete this sentence in not more than 25 words:

"I like DR queens because . . . . . ."

Contest closes May 1, 1949 — awards June 1, 1949.

1st prize—25 DR queens; 2nd prize—15 DR queens; 3rd prize —10 DR queens; next 5 prizes—1 year's subscription to your favorite beekeeping magazine. Judges announced next month

Write for our NEW REDUCED PRICES

Iowa Beekeepers' Association

State House **Des Moines, Iowa**

Quality Bred Italians

YORK'S

Package Bees and Queens for 1949

The Strain Preferred by Leading Honey Producers

The past season has come and gone and we wish to thank you for your patronage. We are now working for the 1949 season sparing no expense to provide you with package bees and queens that give the most in satisfaction. Our bees have won a national reputation with honey producers as the best foundation stock that can be obtained. Ask any of our customers. Order direct from this advertisement to save time. Order now to reserve your shipping date.

Package Bees with Young Laying Queens

Quantity	1-24	25-99	100-up
2-lb. pkg.	$4.50 each	$4.25 each	$4.00 each
3-lb. pkg.	5.60 each	5.30 each	5.00 each
4-lb. pkg.	6.70 each	6.35 each	6.00 each
5-lb. pkg.	7.80 each	7.40 each	7.00 each
Extra Queens	1.40 each	1.30 each	1.20 each

For queenless packages, deduct price of queen
For tested queens, add $1.00

Only neat new cages are used for bees, certified bees from our own apiaries, state registered and state inspected. Package bees by express, queens not with packages by mail. We recommend 3-lb. packages as the best all-around size. Queens are young, bred from carefully selected breeder queens and mated to drones from selected queens. If convenient, small orders cash, larger orders $1.00 deposit per package to insure shipping date. Shipments will begin as early as weather permits, usually about April 1. Help us to help you by booking your order now.

York Bee Company Jesup, Ga., U. S. A.

(The Universal Apiaries)

HERIER'S

Italian

Package Bees and Queens

Bred over a period of years for Honey Production, Ease of Handling, and Prolificness.

Prompt Shipment of Young Worker Bees. Health Certificate and Live Delivery of Over Weight Packages.

	1-9	10-49	50-up
2 lb. with queen	$4.00	$3.90	$3.75
3 lb. with queen	5.00	4.90	4.75
4 lb. with queen	6.00	5.90	5.75

Extra Queens, $1.20 each

R. B. Herier Co.

Valdosta, Ga.

SPEARS'

Package Bees and Queens for 1949

Quality Bred Italians

Carefully selected and bred from best stock available in Louisiana, which insures hardiness, vigorousness, and prolificness. Our bees are very quiet, are light yellow in color, and are excellent workers, fresh from southern hives used only to shake bees, assuring you of only young, vigorous workers. Insure success in '49 with bees from Spears' Apiaries.

Place your orders early to get your shipping date when wanted. We solicit and appreciate all orders, whether for a few packages or several hundred. Live delivery is guaranteed, satisfaction assured, and a health certificate accompanies each order.

Insure delivery on the date desired by sending us your orders now. All correspondence will be treated with equal courtesy and promptness.

Quan.	2-lb.	3-lb.	4-lb.	Queens
1-24	$3.95	$4.95	$6.10	$1.00
25-up	3.75	4.80	5.90	1.00

10% deposit, balance sent before shipping date.

Spears' Apiaries

Hamburg, Louisiana